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By SAMUEL CURTIS, F. L. S.

THE DESCRIPTIONS

By SIR WILLIAM JACKSON HOOKER, K. H.

LLD. F.R.A. and L.S. Vice President of the Linnean Society, and
Director of the Royal Botanic Garden of Kew.

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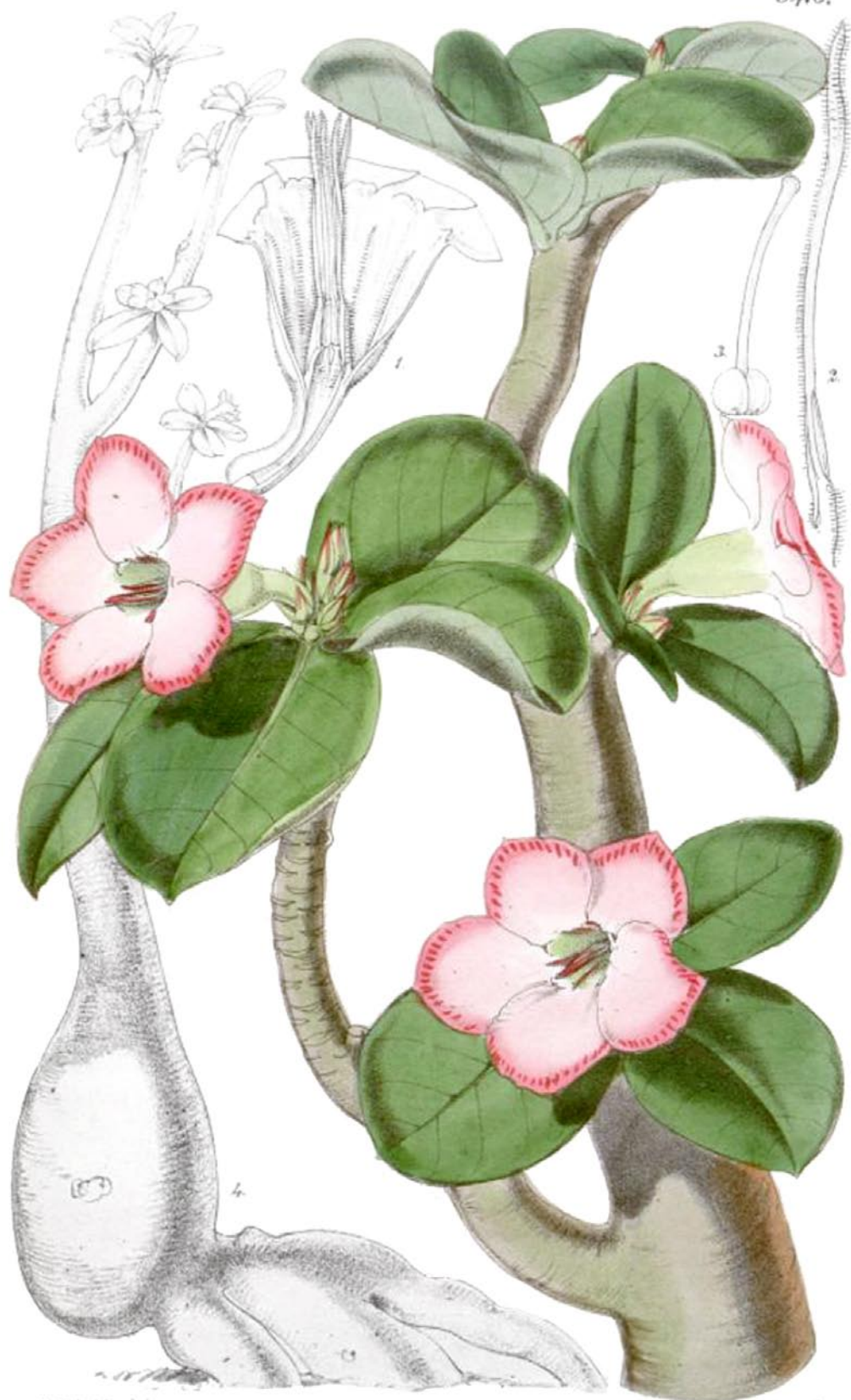
AT THE

BOTANICAL MAGAZINE WAREHOUSE, GLAZENWOOD, NEAR COGGESHALL, ESSEX:

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ADENIUM OBESUM.

Thick-stemmed Adenium.

Nat. Ord. APOCYNÆA.—PENTANDRIA MONOGYNIA.

Gen. Char. Calyx 5-partitus, lobis lanceolatis glandulosis. Corolla tubus inferne cylindricus, angustatus, dein ampliatus exappendiculatus, externe pubescens, parte ampliata inferiore longiore infundibuliformi-cylindræcea, interne subpubescente; lobis æstivatione sinistrorsum convolutis, non replicatis, tubo brevioribus. Filamenta 5, brevissima, superne in tubi parte angustiore; antheræ lineari-sagittatæ, medio cum stigmatibus cohærentes, apice seta pilosa longitudine corollæ terminatæ. Glandulæ circa ovaria nullæ. Ovaria duo, globosa (ex Vahl), elliptica (ex A. Honghel) et glabra. Stylus 1. Stigma capitatum, apice bidentatum, "basi (ex A. Honghel) membrana reflexa cupuliformi cinctum." Ovula ∞ , pendentia, imbricata. FOLLICULI.—Semina (ex A. Honghel) cylindræceo-prismatica, utrinque comosa, coma inferiore serius caduca. Testa striata, denticulis retrorsis (sub lente videndis) aspera. Embryo rectus; radícula supera ovoidea oblonga, apice conica; cotyledonibus radícula multo brevioribus, ovatis foliaceis, margine involutis?—Frutices caudice carnoso, globoso, ramis carnosulis; foliis paucis in axillis setiferis, integris; floribus ad apicem ramorum approximatis, breviter pedicellatis purpureis.—Genus habitu Pachypodii, sed seminibus bicomosis ! Alph. De Cand.

ADENIUM *obesum*; foliis ad apicem ramorum approximatis oblongis subpetiolatis mucronatis eveniis subtus villosis tomentosis, junioribus utrinque mollibus pedicellis villosis, calyce pubescente, lobis corollæ rotundatis. A. De Cand.

ADENIUM *obesum*. Rœm. et Sch. Syst. Veget. v. 4. p. 411. De Cand. Prodr. v. 5. p. 412.

NERIUM *obesum*. Forsk. Fl. Æg. Arab. p. 205. Vahl, Symb. v. 2. p. 45.

PACHYPODIUM *obesum*. Don, Gen. Syst. Hort. and Bot. v. 4. p. 80.

CAMERARIA *obesa*. Spreng. Syst. Veget. v. 1. p. 641.

ADENIUM Honghel. Lindl. in Bot. Misc. v. 32. tab. 54. (vix De Cand.)

A very remarkable-looking plant, native of the Arabian deserts, and first noticed by Forskahl, in his 'Flora Ægyptiaco-Arabica.' It was, prior to 1846, introduced, in a living state, to the Horticultural Society's Garden, through the medium of the Directors of the East India Company, from Aden. Several healthy plants were kindly sent to us also from Aden, by J.

Olding, Esq., of the Peninsular and Oriental Company's Steamers, in 1862, and from the finest of these plants, nearly three feet high, our figure has been made, in August, 1863. One of our figures (4) represents an entire flowering-plant, greatly reduced, accompanied by a branch of the natural size. But judging by a photograph lately sent to us by the kindness of Captain Playfair (late Political Agent at Aden, and now Her Britannic Majesty's Consul at Zanzibar), the shrub attains a very large size, and exhibits a most curious aspect with its thick tortuous branches, and very gouty base of the trunk; the flowers however are handsome, and not much unlike those of the *Oleander*, to which family of plants this belongs. A second species (*A. Honghel*, De Cand.) is found on the Senegambia. Lindley speaks of this (or probably an allied species) as found at Delagoa Bay. It evidently affects a hot dry country.

Fig. 1. Tube of the corolla laid open, showing the stamens. 2. Single stamen. 3. Pistil:—*all magnified*. 4. Flowering plant, very much *reduced* from the natural size.



ÆCHMEA DISTICHANTHA.

Distichous-flowered Æchmea.

 Nat. Ord. BROMELIACEÆ.—HEXANDRIA MONOGYNIA.

Gen. Char. *Bracteæ* sub singulo flore cyathiformes. *Perigonii* superi, sexpartiti; lacinia exteriores calyculatæ, æquales, spiraliter convolutæ, aristatæ v. muticæ, apice hinc oblique dilatatæ; *interiores* petaloideæ, *exterioribus* multo longiores, inferne convolutæ, basi intus squamosæ v. rarius nuda. *Stamina* 6, imo perigonio inserta; *filamenta* filiformia, tria laciniarum interiorum basi adnata; *antheræ* ovatæ, dorso affixæ, subincumbentes. *Ovarium* inferum, triloulare. *Ovula* plurima, e loculorum angulo centrali pendula, anatropa. *Stylus* filiformis; *stigmata* 3, linearia v. petaloidea, spiraliter convoluta. *Bacca* ovato-subglobosa, triloculares. *Semina* plura, ex apice loculorum pendula; *testa* coriacea, fusca. umbilico filo brevi gracili appendiculato. *Embryo* minimus, rectus, in basi albuminis dense farinacei, extremitate radiculari umbilicum attingente, supera.—*Herbæ Americane tropicæ, sæpe in arborum truncis pseudoparasiticæ; foliis radicalibus ligulatis v. ensiformibus, crassis, coriaceis, integerrimis v. spinuloso-serrulatis; scapo ramoso, paniculato; rachi flexuosa; bracteis sub singulo flore cyathiformibus, spinoso-aristatis, integerrimis v. tricrenatis; floribus terminalibus abortivis. Endl.*

ÆCHMEA *distichanthus*; foliis e basi dilatata amplexantibus bipedalibus lineari-oblongis elongatis glaucescentibus elongatis acuminatis canaliculatis, aculeis uncinatis atris remotis spinescentibus, scapo foliis brevior colorato folioso apice paniculato-spicato, ramis spicatis copiose bracteatis distichis, bracteis rubris copiosis, floribus etiam distichis, sepalis erectis imbricatis roseis, petalis purpureis, singulo intus bisquamuloso, staminibus 6, filamentis sursum clavatis.

ÆCHMEA *distichantha*. Lemaire, *Jard. Fleuriste*, v. 3. p. 269 cum icon.

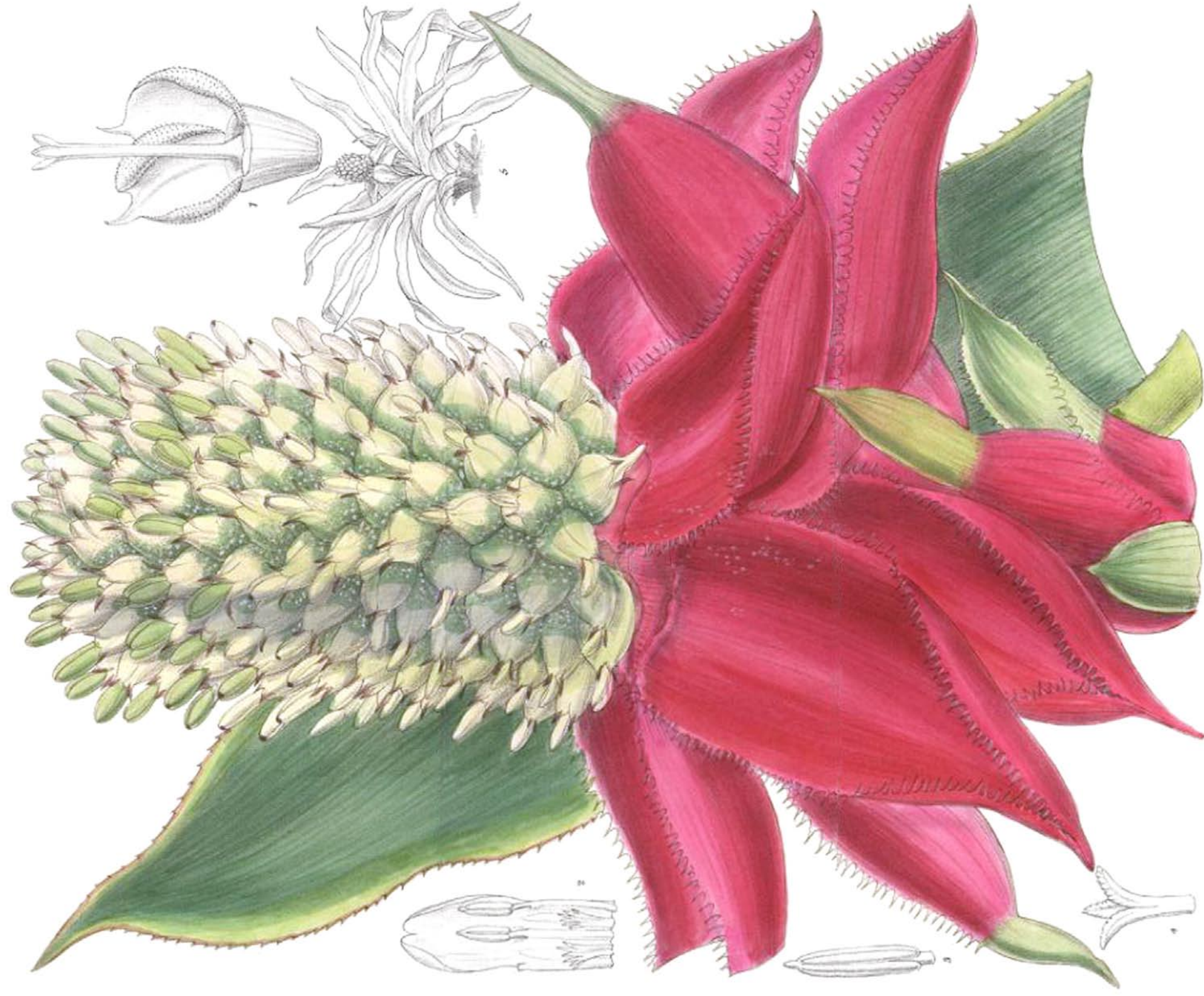
BILLBERGIA ? polystachya. *Part. Fl. Gard.* v. 3. t. 80.

HOPLOPHYTUM *distichanthum*. Beer, *Bromel.* p. 136.

A South American Bromeliaceous plant, from the province of St. Paul (South Brazil, we presume); a family which stands in great need of scientific examination, instead of being left to the tender mercies of mere horticulturists, who contribute
JUNE 1ST, 1864.

little to the correct knowledge of either generic or specific differences, but who are, nevertheless, instrumental in importing plants which can hardly be described except from living cultivated specimens.

Fig. 1. Flower. 2. Petals and scales, with a stamen. 3. Stamen. 4. Pistil:—*magnified*.



TAB. 8107.
ÆCHMEA GIGAS.
Brazil ?

BROMELIACEÆ. Tribe BROMELIÆ.

ÆCHMEA, Ruiz et Pav.; Benth. et Hook f. Gen. Plant. vol. iii. p. 663.

Æchmea gigas, E. Morren ex Baker, Handb. Bromel. p. 61; *Æ. Lalindei*, Linden & Rodigas, affinis, bracteis inermibus recedit.

Planta acaulescens. *Folia* circa 16 rosulatim disposita, lorata, breviter acuminata, basi vaginata, 3 ped. longa, 5 poll. lata, supra fere glabra, subtus albo-furfuracea; spinæ ad foliorum medium recta, inter se 3 lin. distantes, inferiores decurva, superiores incurvæ. *Pedunculus* fere 1 ped. longus, robustus; bracteæ dentate, inferiores imbricatæ, vagina elliptica inflata purpurea laminaque ovata acuminata viridi, superiores rosulatim congestæ, ovate, purpureæ, 5 poll. longa, $2\frac{1}{4}$ poll. latæ, dentatæ; spica simplex, oblonga, 5 poll. longa, 2 poll. lata. *Calyx* rigidus, extus albo-lepidotus; lobi 4 lin. longi, suborbiculares, concavi, breviter aristati. *Corolla* breviter exserta, dilute viridis; petala 7 lin. longa, $1\frac{1}{2}$ lin. lata, anguste oblonga, emarginata, basi squamis duabus fimbriatis instructa. *Stamina* ad corollæ medium affixa; antheræ oblongæ, mucronatæ, quam filamenta duplo longiores. *Stylus* breviter trilobus. *Fructus* 3–6-angularis, albo-lepidotus, infra viridis, supra dilute roseus, pyramidalis, sepalorum mucronibus erecto-patentibus coronatus, $1\frac{1}{4}$ poll. longus.

The plant here figured was purchased from the widow of the late Prof. E. Morren of Liège, and flowered in the Victoria House at Kew for the first time in March last. No description of the species was ever published by Prof. Morren, but there exists amongst his drawings at Kew a life-sized figure by P. Stroobant of a plant which flowered in November, 1881. *Æ. Lalindei*, Linden & Rodigas (*Ill. Hort.* vol. xxx. t. 481), to which this species is united by Mr. Baker, is a very close ally from New Granada, of which perfect flowers are not known. Mez (in DC. *Monogr. Phan.* vol. ix. p. 263) does not agree as to the identity of these two species, but suggests that our plant belongs to the section *Chevaleria*; it seems, however, to connect that section with *Pothuava*, in having the inflorescence of the latter without large bracts subtending each flower, while the angular ovary is that of the former. *Æ. Mariæ-Reginæ*, H. Wendl. (*Bot. Mag.* t. 6441) is another allied species, but with a longer, narrower spike, and narrower bracts.

Since flowering the plant at Kew has produced two
 DECEMBER 1ST, 1906.

healthy offsets. The original plant was sent to Prof. Morren by Dr. A. Glaziou of Rio Janeiro, and is presumably a native of Brazil.

Descr.—Acaulescent. *Leaves* about sixteen in a tuft, lorate, shortly acuminate, sheathing at the base, three feet long, five inches wide, nearly glabrous above, white furfuraceous beneath; spines at the centre of the leaf three lines apart and straight, the lowermost decurved, the uppermost upcurved. *Peduncle* nearly a foot long; bracts dentate, the lower imbricate, with a crimson, elliptic, inflated sheath and a green, ovate-acuminate blade, the uppermost rosulate, ovate, crimson, five inches long, two and a quarter inches wide; spike oblong, five inches long, two inches wide. *Calyx* rigid, white, lepidote outside; lobes four lines long, suborbicular, concave, shortly awned. *Corolla* shortly exserted, pale green; petals seven lines long, a line and a half wide, narrowly oblong, emarginate, with two fimbriate scales at the base. *Stamens* inserted about half-way up the corolla; anthers oblong, mucronate, about twice as long as the filaments. *Style* shortly three-lobed. *Fruit* three- to six-angled, white lepidote, green below, pale rose and pyramidal above, an inch and a quarter long, crowned by the spreading awns of the persistent sepals.—C. H. WRIGHT.

Fig. 1, portion of calyx and pistil. 2, portion of corolla laid open; 3, anther; 4, apex of style; 5, whole plant:—1–4, *enlarged*; 5, *much reduced*.



M. S. del. J. N. Pich. Lith.

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TAB. 6565.

ÆCHMEA LINDENI.

Native of South Brazil.

NAT. ORD. BROMELIACEÆ.—Tribe BROMELIÆÆ.

Genus ÆCHMEA, *Ruiz et Pavon*; (*Baker in Trimen Journ. Bot. N.S.* vol. viii. p. 129.)

ÆCHMEA (*Pothuava*) *Linden*; acaulis, cespitosa, foliis circiter 20 loratis rigidis erectis 2–3-pedalibus apice rotundatis minute cuspidatis facie viridibus canaliculatis dorso obscure lepidotis et lineatis margine aculeis minutis deltoideis ascendentibus armatis, pedunculo subpedali foliis pluribus parvis lanceolatis scariosis adpressis superioribus rubellis prædito, floribus multis in spicam densam oblongam simplicem aggregatis, bracteis membranaceis rubris inferioribus lanceolatis acutis calyce æquilongis, ovario oblongo luteo glabro, sepalis deltoideo-orbicularibus imbricatis distincte oblique cuspidatis, petalis lingulatis citrinis sepalis duplo longioribus basi appendiculatis, genitalibus inclusis.

Æ. (*Pothuava*) *Linden*, *Baker in Trimen Journ. N.S.* vol. viii. (1879) p. 233.

HOPLOPHYTUM *Linden*, *E. Morren. in Belg. Hort.* vol. xv. (1865) p. 164; vol. xxiii. (1873) p. 81, t. 5; *K. Koch in Wochenschrift*, vol. viii. (1865) p. 398.

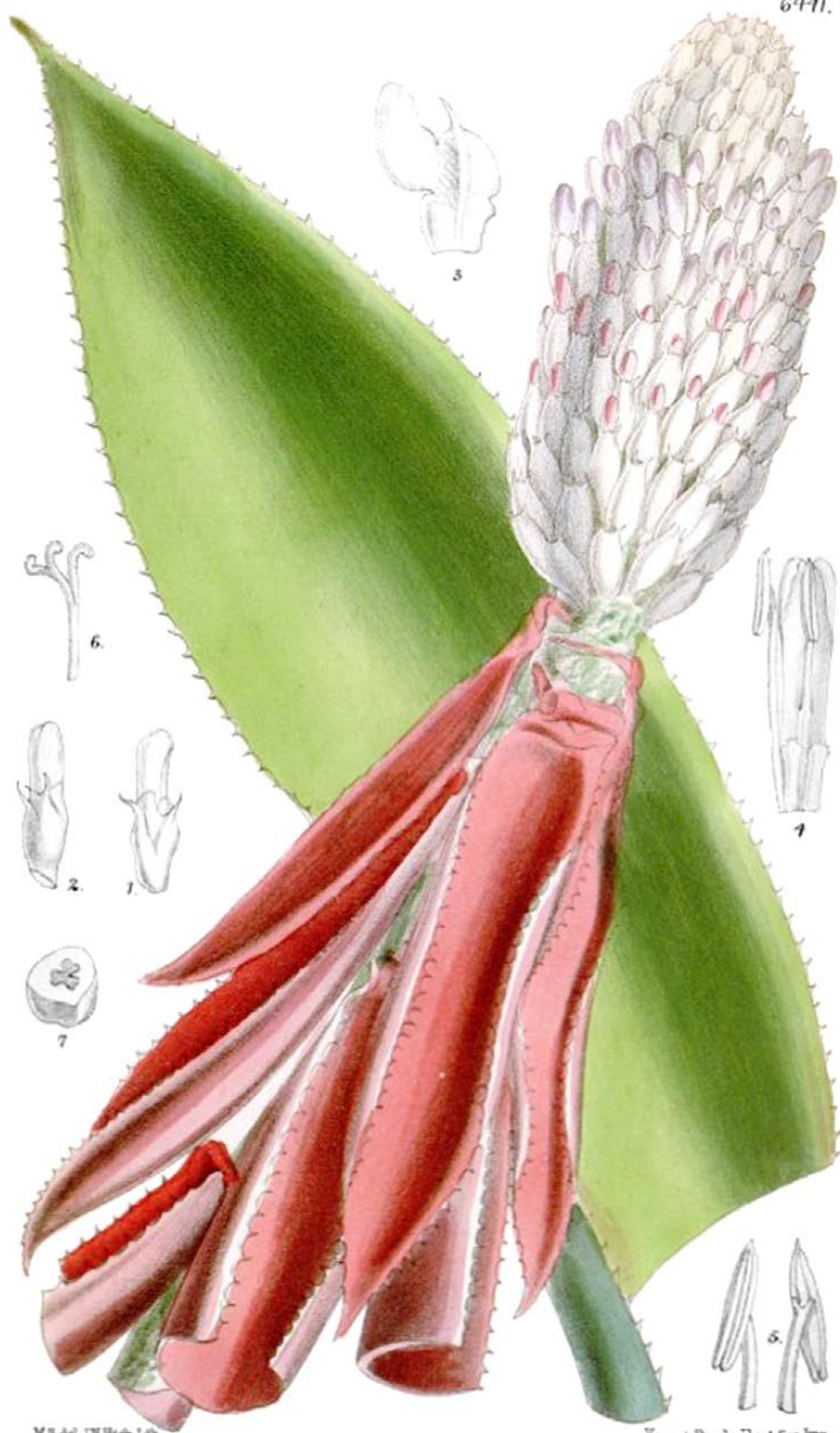
Next to *Billbergia*, *Æchmea* may fairly be considered the most effective genus of Bromeliads for decorative purposes. Of late years our knowledge of it has rapidly increased, and several fine new species have been brought into cultivation. Taking the genus in a broad sense, so as to include *Hoplophytum*, *Echinostachys*, *Pothuava*, and *Canistrum*, as it is treated in my monograph in the *Journal of Botany* above cited, we know now not less than sixty species, so that next to *Tillandsia* it is the largest genus in the Natural Order. The present plant was distributed by *Linden* in 1865, and was received by him from *M. Libon*, who discovered it in the province of *Santa Catherina* in *South Brazil*. Our drawing was made from a plant presented to the *Kew* collection by *Mr. J. T. Peacock*, which flowered in the palm-stove in *March, 1879*. It is a near ally of the plant figured by *Gaudichaud* (*Atlas Bonite*, *Tab. 117*) under the name of *Ptothuava spicata*, which I

JUNE 1ST, 1881.

take to be merely a variety of the widely-diffused *Æchmea nudicaulis* of Grisebach, the *Bromelia nudicaulis* of Linnæus.

DESCR. *Tufts* sessile, crowded. *Leaves* about twenty in a rosette, lorate, rigid in texture, erect, two or three feet long, three inches broad at the dilated base, one and a half or two inches at the middle, rounded with a small cusp at the apex, green and glabrous on the channelled face, obscurely lepidote and lineate on the back, the edge bordered by minute ascending horny teeth. *Peduncle* about a foot long, with several small ascending lanceolate, adpressed scariose leaves, the upper tinted red. *Flowers* numerous, tightly packed in a dense simple oblong spike two or three inches long; bracts one to each flower, bright red, membranous in texture, the lower ones lanceolate acute, as long as the calyx, the upper ones shorter and obtuse, with a cusp. *Calyx* not more than half an inch long including the ovary, which is oblong, glabrous, and bright orange-yellow; sepals orbicular-deltoid, horny, imbricated, with a large oblique cusp. *Petals* lingulate, obtuse, lemon-yellow, twice as long as the sepals, scaled inside at the base. *Stamens* included; filaments and anthers both linear, lemon-yellow, the latter dorsifixed and erect. *Ovary* many in a cell, central, horizontal; style filiform; stigmas linear, spirally twisted.—*J. G. Baker.*

Fig. 1, the whole plant, *reduced*; 2, a sepal, *enlarged*; 3, a complete flower, with its bract, *natural size*; 4, a petal, with the stamen attached to it; 5, one of the basal scales of the petal; 6, two views of an anther; 7, stigmas; 8, horizontal section of ovary; 9, an ovule:—*all more or less enlarged.*



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TAB. 6441.

ÆCHMEA MARIÆ-REGINÆ.

Native of Costa Rica.

Nat. Ord. BROMELIACEÆ.—Tribe ANANASSEÆ.

Genus ÆCHMEA, *R. & P.*; (*Baker in Trimen Journ.* 1879, p. 129).

ÆCHMEA (*Chevalliera*) *Mariæ-reginæ*; acaulis, foliis basalibus 15–20 dense ro-
sulatis lorato-lanceolatis acutis basi dilatatis subcoriaceis 2–3-pedalibus
utrinque prasertim ad faciem inferiorem tenuiter lepidotis spinis margin-
alibus parvis crebris patulis instructis, pedunculo valido stricto subpeda-
li albo-tomentoso bracteis pluribus lanceolatis reflexis spinoso-dentatis
splendide coccineis prædito, floribus in spicam oblongam densam aggrega-
tis, bracteis floralibus minutis lanceolatis membranaceis, ovario oblongo
albo-lepidoto, sepalis æquilongis et latis obliquis valde imbricatis conspicue
cuspidatis, petalis lingulatis sepalis duplo longioribus primum cæruleis de-
mum rubris basi distincte bisquamatis, genitalibus inclusis.

Æ. Mariæ-reginæ, *H. Wendl. in Hamb. Gartenzeit* vol. xix. (1863), p. 32; *Regel,*
Gartenfl. vol. xiii. (1864), p. 152; *Baker, in Trimen Journ.* 1879, p. 162.

This is botanically a near neighbour of *Æchmea* (*Cheval-
liera*) *Veitchii*, figured in the BOTANICAL MAGAZINE, tab. 6329.
The leaves and spikes of the two plants are similar, but here
the flower-bracts are reduced to a minimum, and the most
effective part of the plant is the large bright red reflexing
bract-leaves of the general peduncle. The present plant is
a native of Costa Rica, where it is used at the feast of Cor-
pus Christi for the decoration of the altars in the churches.
Its local name is “Flor de Santa Maria,” from which the
scientific name has been taken. It has been in cultivation
in Europe for nearly twenty years, but only flowers rarely.
Our plate was drawn from a specimen that flowered with
Messrs. B. S. Williams and Co., at Holloway, in April of this
present year.

DESCR. *Leaves* fifteen to twenty in a sessile utricular ro-
sette, lorate-lanceolate, two or three feet long, three or
four inches broad at the dilated clasping base, two or three
inches in the middle, subcoriaceous in texture, thinly white

AUGUST 1ST, 1879.

lepidote on both sides, especially on the under surface, narrowed gradually to a cuspidate tip, margined with crowded lanceolate small spreading brown prickles, which grow gradually less from the base of the leaf upwards. *Peduncle* about a foot long, stout, stiffly erect, clothed throughout with thin white lepidote tomentum, furnished with numerous reflexing persistent crimson lanceolate bract-leaves with toothed margins. *Flowers* in a dense oblong spike three or four inches long, each subtended by a minute lanceolate membranous bract. *Calyx* including the ovary half an inch long, clothed throughout with white tomentum; sepals about as broad as long, oblique, much imbricated, furnished with a large pungent cusp. *Petals* lingulate, half an inch long, blue when they first open, turning red as they fade, furnished each with a pair of minute fimbriated scales at the base. *Stamens* and *pistil* reaching to the summit of the petals.—*J. G. Baker.*

Figs. 1, and 2, entire flowers, *life-size*; fig. 8, a calyx-segment, of unusually irregular form; fig 4, a petal and a couple of stamens; fig. 5, two anthers, showing their insertion on the filament; fig. 6, stigmas and summit of style; fig. 7, horizontal section of ovary:—*all more or less enlarged.*

ÆCHMEA MERTENSII. MERTENS' ÆCHMEA.

Class and Order.

HEXANDRIA MONOGYNIA

(Nat. Ord.—BROMELIACEÆ.)

Generic Character.

Bracteæ 3, in cyatho connatæ. *Calyx* superus. *Petala* convoluta, distincta, basi squamosa. *Stamina* basi perithii inserta. *Stylus* filiformis. *Stigmata* linearia convoluta. *Capsula* baccata. *Semina* nuda. *Lindl.*

Specific Character and Synonyms.

ÆCHMEA * *Mertensi*; racemo spicato denso pubescenti-lanato, floribus glomerato-fasciculatis bracteis universalibus foliaceis coloratis, partialibus solitariis ventricosconvolutis striatis calycibusque spina terminatis petalis acutissimis, foliis ligulatis acutis lepidotis spinoso-marginatis inferne convolutis.

ÆCHMEA *Mertensii*. *Schultes, Syst. Veget. v.7. p. 1272.*

BROMELIA *Mertensii*. *Meyer, Fl. Essequib. p. 144. Spreng. Syst. Veget. v. 2. p. 21.*

DESCR. *Leaves* radical, two feet and more long, erectopatent, ligulate, acute, concave, coriaceous dark-green above, paler and more yellowish beneath, on both sides dotted with minute, membranaceous, white scales, not at all fasciculated, convolute below, the margins beset with strong deflexed, spinous teeth, of a dark-brown colour. *Scape* a foot or more long, terete, downy upwards, and there, and in the lower part of the spike, beneath the fascicles of flowers, bearing several oblongo-lanceolate membranaceous,

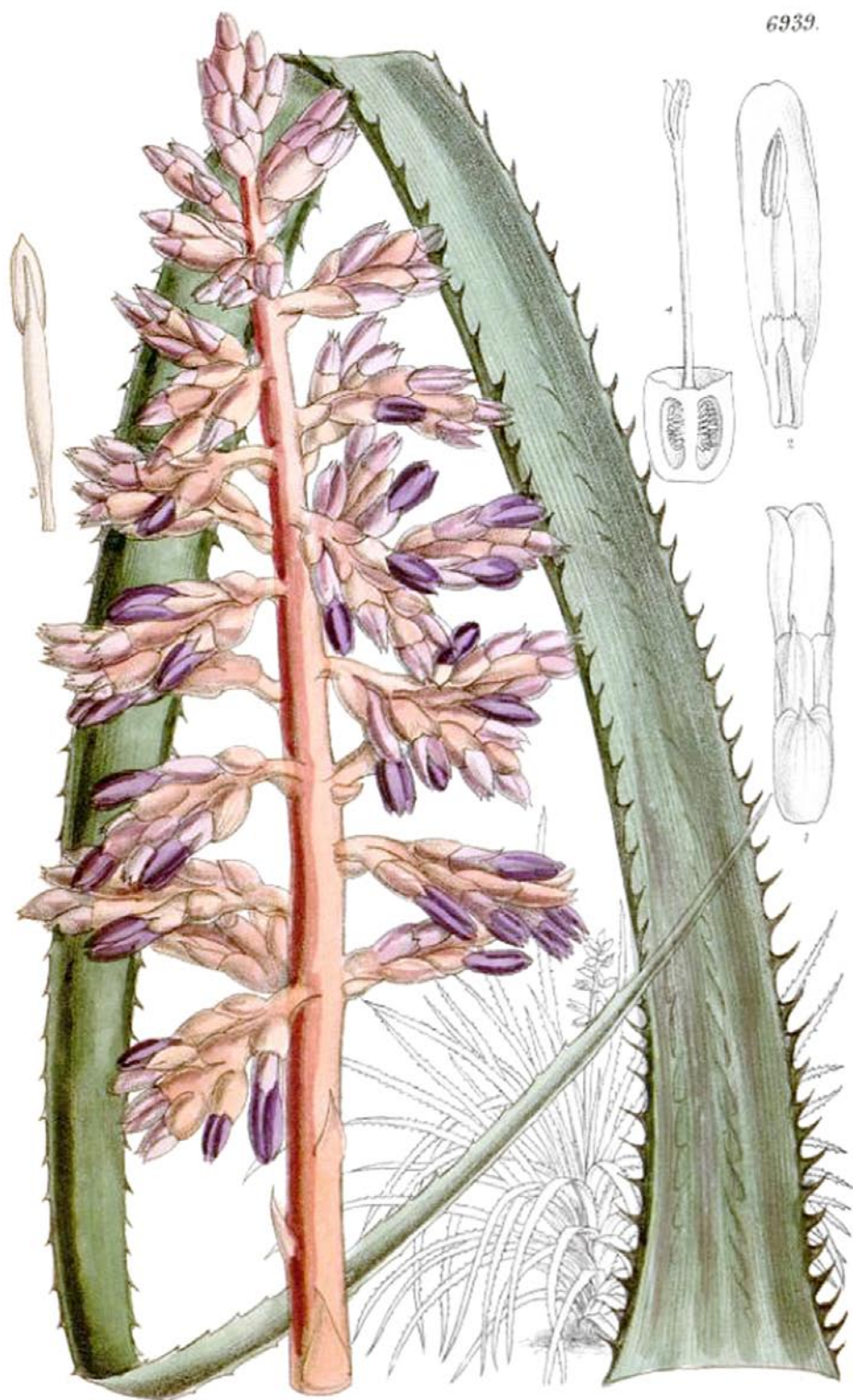
* *αχμη*, a point, from the rigid points on the calyces.

branaceous, spinoso-dentate, red, more or less downy, large *bracteas*, which are soon reflected and withered. *Raceme* nearly a foot long, stout, spicate, downy, composed of numerous, glomerated or fasciculated flowers, each subtended by a somewhat ventricose, green, striated, obtuse, downy circumvolute *bractea*, more than half as long as the flower, which it closely embraces, having a strong and sharp dark-purple spine, just below the point. *Calyx* superior, of three erect, convolute, rather rigid, yellow, or greenish-yellow *sepals*, each terminated by a dark-coloured, rigid spine. *Petals* linear, acute, bright and deep rose-red, longer than the calyx, having two very obscure white scales near the base, afterwards changing to orange. *Stamens* six; three on the base of the petals, and three alternating with them. *Filaments* white, shorter than the petals: *Anthers* white, oblong-oval, with an acute point. *Germen* inferior, obovate slightly downy, green, three-celled, each cell bearing many *ovules* attached to the upper part of the inner angle. *Style* as long as the filaments, white. *Stigmas* three, linear, white, downy, twisted. The *fruit*, which has been obligingly sent to me since the plate was completed, by Mr. SHEPHERD, and too late to have the whole figured, is extremely beautiful consisting of numerous bright blue, ovato-acuminated *berries*, mixed with some white abortive ones, tipped with the withered remains of the perianth, and all collected together into a very oblong head. Each *berry* has three cells a several oblongo-pyriform brown *seeds*, suspended from the top of the cells. *Albumen* between corneous and farinaeous. *Embryo* small, situated near the *hilum*.

For the introduction of this beautiful Bromeliaceous plant to the Botanic Garden of Liverpool, we are indebted to the great friend and patron of that Institution and of Botany in general, C. S. PARKER, Esq., who, whilst on a visit to Demerara, sent it, with many other rarities from that country, where it is parasitical upon trees. Its noble yellow green spikes, tipped with richly-coloured, erect, protruded portions of the petals, and the large red bracteas at the base, render this plant most desirable inmate of the stove. It flowers in March and April.

I follow Dr. SCHULTES in referring this plant to *ÆCHMEA*, which Mr. LINDLEY distinguishes from *BILLBERGIA*, by the three bracteas of the flower being united into a single cup-shaped one. This part, in our plant, is less distinctly cup-shaped than in RUIZ and PAVON's original *Æ. paniculata*.

Fig. 1. Fascicle of Flowers. 2. Single Flower with its Bractea. 3. Inner view of a Bractea. 4. Flower. 5. Ditto, from which the Calyx has been removed. 6. Petal and two Stamens. 7. Germen cut through horizontally. 8. Berries, *nat. size*. 9. Section of a Berry, the Seeds being removed. 10. Vertical Section of a Berry showing two of the Cells filled with Seeds. 11. Seed. 12. Section of ditto: all but 8. 8. more or less *magnified*.



MS. Bot. in Herb. 101.

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TAB. 6939.

ÆCHMEA MYRIOPIHYLLA.

Native of Tropical America.

NAT. ORD. BROMELIACEÆ.—TRIBE BROMELIÆÆ.

Genus *ÆCHMEA*, Ruiz et Pavon.s; (*Benth. et Hook. f. Gen. Pl.* vol. iii. p. 663.)

ÆCHMEA (*Platyæchmea*) *myriophylla*; acaulis, foliis 30–40 dense rosulatis ensiformibus rigidis falcatis bipedalibus et ultra facie obscure viridibus canaliculatis dorso tenuiter albo-lepidotis, pedunculo centrali erecto rubello subpedali deorsum foliis arete imbricatis viridibus occulto, floribus permultis confertis in paniculam laxam oblongo-deltaideam ramis multis brevibus patulis distichis subsessilibus dispositis, bracteis late ovatis obtusis cuspidatis apice solum liberis, ovario oblongo. calycis segmenntis ovato-lanceolatis cuspidatis, petalis oblongo-spathulatis rubellis calycis segmentis duplo longioribus, staminibus styloque petalis brevioribus.

Æ. myriophylla, Hort. Morren.

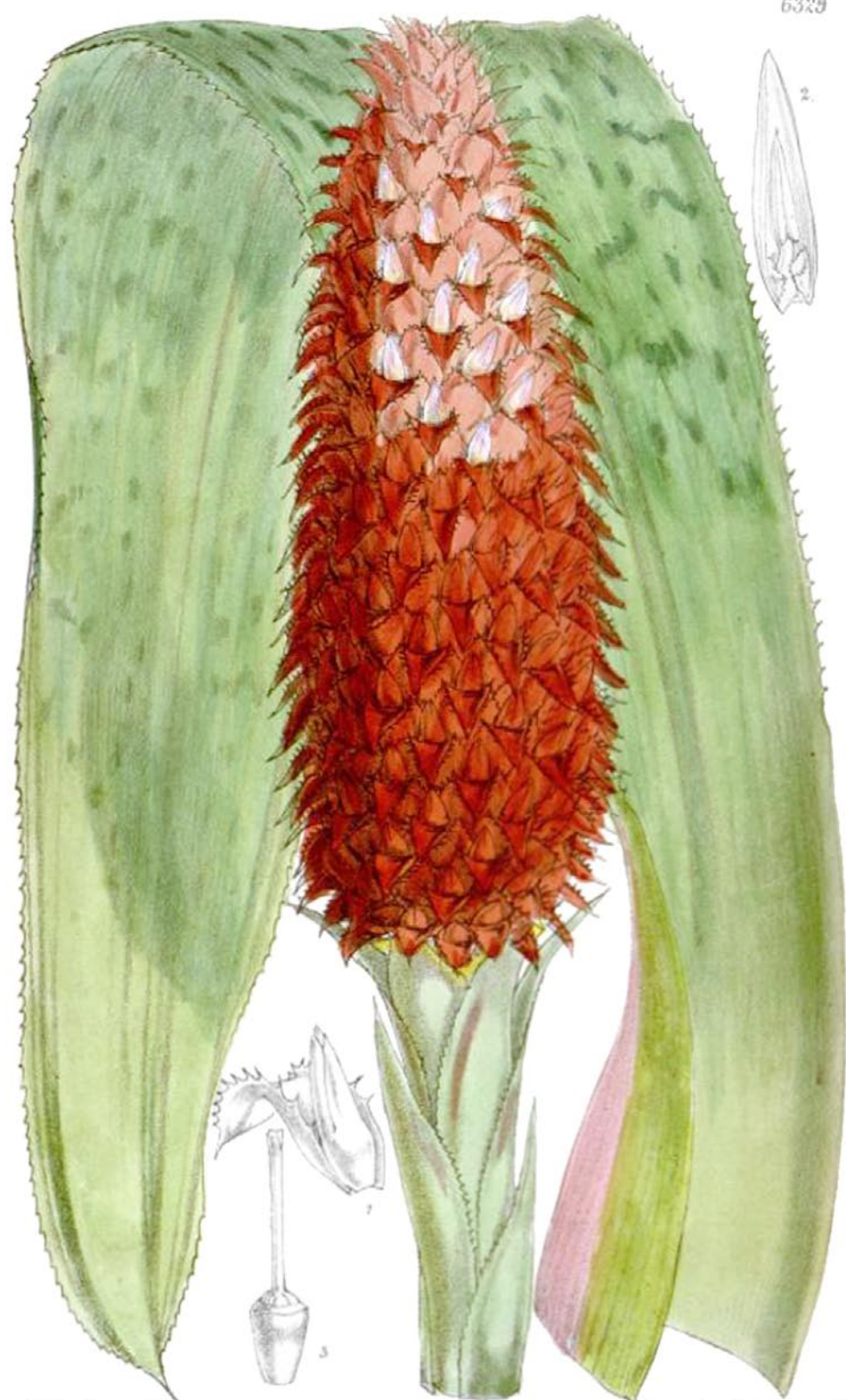
This is a very distinct unpublished species of Bromeliad, which belongs to a small section of the genus *Æchmea*, which is characterized by the distichous arrangement of the flowers, a plan very common in the *Tillandsiæ*, but very unusual in the genera with an inferior ovary. The only species of this series which has already been figured in the BOTANICAL MAGAZINE is *Æchmea distichantha*, Lemaire (BOT. MAG., tab. 5447), but besides these two, nine species are now known, most of which inhabit the open tracts of the southern provinces of Brazil. The flowers, though not large, are bright in colour and remain in good condition for a long time. Our drawing was made from a plant that flowered at Kew in October, 1886, which was purchased from the collection of the late Professor Morren. We have no exact information as to its native country.

DESCR. Acaulescent, densely caespitose. *Leaves* thirty or forty in a dense rosette, ensiform, rigid in texture, falcate, two or two and a half feet long, an inch broad at the middle, tapering gradually to a long point, channelled all the way down the dull-green face, thinly argenteo-lepidote on the back, neither spotted nor banded, margined with moderately close ascending brown horny prickles.

JUNE 1ST, 1887.

Peduncle erect, central, a foot long, bright red, hidden, except at the top, by the erect imbricated green bract-leaves. *Panicle* oblong-deltoid, bipinnate, half a foot long; branches numerous, spreading, distichous, subsessile, an inch or an inch and a half long; flower-bracts broad ovate, pink, a quarter of an inch long, adnate to the rachis except at the cuspidate tip. *Ovary* as long as the bract; calyx-segments horny, ovate-lanceolate, cuspidate. *Petals* oblong-spathulate, connivent, twice as long as the calyx-segments, pink fading to lilac. *Stamens* and style not protruded beyond the petals.—*J. G. Baker.*

Fig. 1, An entire flower; 2, a petal and stamen; 3, back view of a stamen; 4, pistil:—*all more or less enlarged.*



TAB. 6329.

ÆCHMEA (CHEVALLIERA) *Veitchii*.

Native of New Granada.

Nat. Ord. BROMELIACEÆ.—Tribe ANANASSEÆ.

Genus ÆCHMEA, Ruiz & Pav. *Fl. Peruv. tab.* 264.

ÆCHMEA (*Chevalliera*) *Veitchii*; acaulis, stolonifera. foliis 12–15 loratis rigide coriaceis pedalibus vel sesquipedalibus facie glabris viridibus dorso prorsus albo-lepidotis haud zonatis margine dentibus crebris minutis brunneis armatis, scapo pedali bracteis pluribus viridibus firmis lanceolatis adpressis dentatis prædito, floribus in capitulum densum oblongum dispositis, bracteis squarrosis dentatis cartilagineis splendide rubris calyce paulo longioribus, ovario inæquilateraliter globoso facie exteriori magis convexo, sepalis lanceolato-deltaideis acutis haud mucronatis ovario longioribus, petalis pallidis parvis lingulatis, genitalibus sepalis subsequilongis, staminibus petalinis basi squamulis parvis præditis.

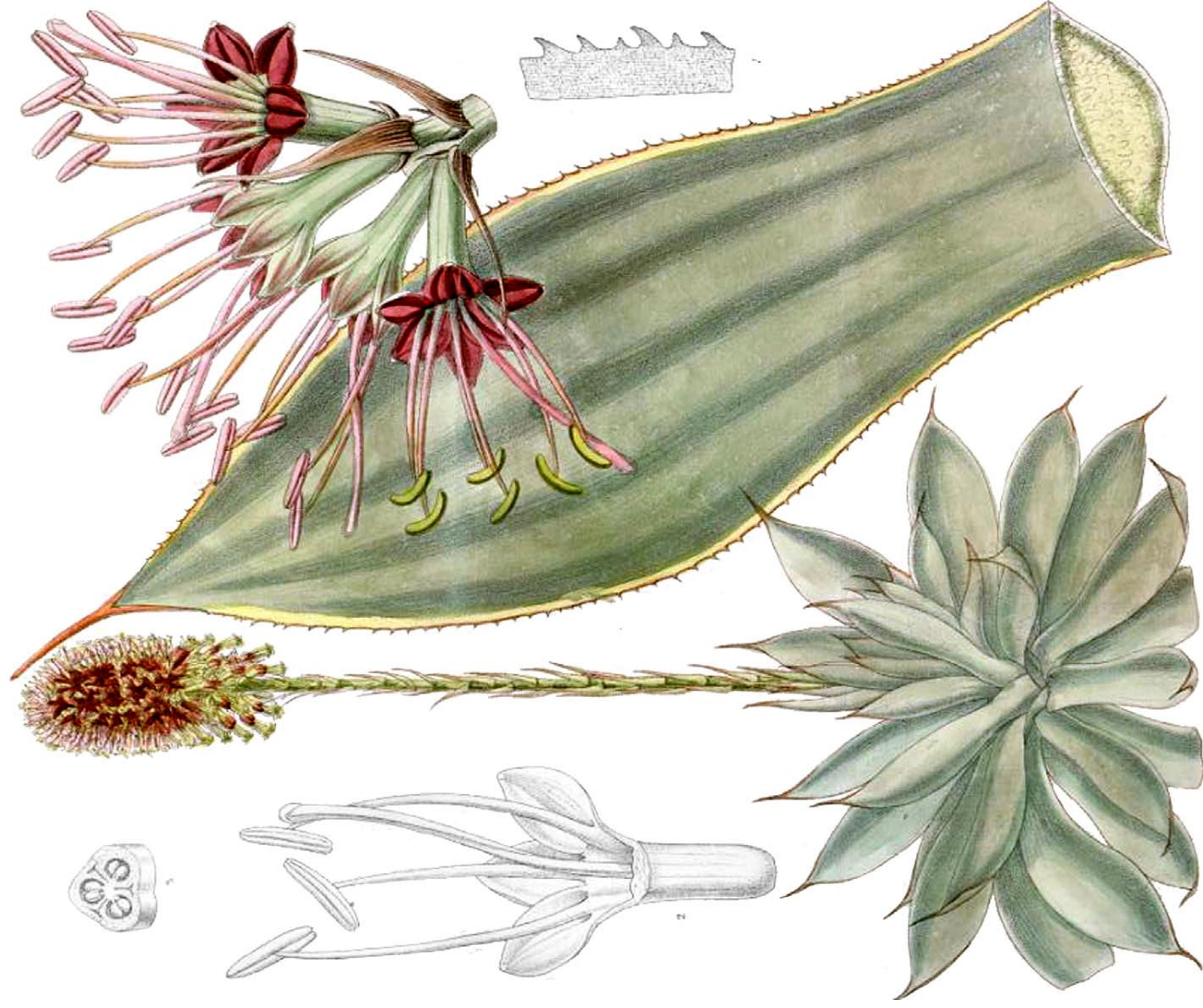
CHEVALLIERA *Veitchii*, *Morren in litt.*

This is a very fine new Bromeliad, discovered by Gustave Wallis in New Granada in 1874, and introduced this present year into cultivation by Messrs. Veitch. It is closely allied to the Costa-rican *Æchmea Mariæ-reginæ* of Wendland, and belongs to the section *Chevalliera*, which was proposed as a genus by Gaudichaud (*Atlas, Voy. de la Bonite*, tab. 61–62), and has been maintained as such by Grisebach and Morren. *Chevalliera* differs from *Hohenbergia*, under which most of the cultivated *Æchmeas* fall, by the heads being so tightly packed that the ovary and calyx have become unequal-sided by pressure, instead of remaining symmetrically globose, and both *Chevalliera* and *Hohenbergia* recede from the original species of *Æchmea* by their central inflorescence and shorter and less protruded petals and stamens. In addition to these, I am disposed to look upon *Hoplophytum*, *Pothuava*, *Pironneava*, *Canistrum* and *Ortgiesia* as mere sections of *Æchmea*.

NOVEMBER 18^T, 1877.

DESCR. Acaulescent, stoloniferous. Produced *leaves* twelve to fifteen, forming a dense basal rosette, lorate, horny in texture, reaching a length of twelve or fifteen inches, and a breadth of under two inches above the middle, so deeply channelled that they are semicircular in horizontal section in the lower half, bright green, and quite naked all down the face, thinly white-lepidote all down the back without any transverse bands, deltoid-cuspidate at the point, the edge bordered all down with close small erecto-patent lanceolate brown teeth. *Scape* about a foot long, central, entirely hidden by the imbricated lanceolate adpressed green horny toothed bracts. *Flowers* in a dense oblong head, three or four inches long, and under a couple of inches in diameter, each subtended by a squarrose bright scarlet horny toothed bract; upper bracts without any flowers in their axils. *Ovary* globose, a quarter of an inch long, the side nearest the axis much less convex than the outer one. *Sepals* lanceolate-deltoid, connivent, under half an inch long, bright scarlet in the lower flowers of the head, white in the upper ones, acute, but not spine-tipped. *Petals* pale, lingulate, imperfectly developed in the specimen drawn. *Stamens* about as long as the calyx, those opposite the petals furnished with a pair of small scales at the base—*J. G. Baker*.

Fig. 1, A single flower, and its clasping bract; 2, petaline stamen and its basal scales; 3, pistil:—*all magnified*.



TAB. 7207.

AGAVE ALBICANS.

Native of Mexico.

Nat. Ord. AMARYLLIDÆ. Tribe AGAVEÆ.

Genus AGAVE, *Linn. (Benth. & Hook. f. Gen. Plant. vol. iii. p. 738.)*

AGAVE (*Littæa*) *albicans*; acaulis, foliis 20–30 dense rosulatis oblanceolato-spathulatis carnosio-coriaceis persistenter glaucescentibus, spinâ terminali haud pungente, aculeis marginalibus crebris minutis deltoideis, pedunculo stricto foliis 3–4-plo longiore foliis reductis pluribus scariosis adpressis prædito, floribus in spicam densam oblongam congestis, bractei magnis lanceolatis acuminatis, perianthii segmentis oblongis intus brunneis tubum duplo superantibus, staminibus segmentis 3–4-plo longioribus.

A. albicans, *Jacobi Vers. Syst. Ord. Agav.* p. 137; *Baker in Gard. Chron.* 1887, vol. ii. p. 717, fig. 138]; *Handb. Amaryll.* p. 191.

A. Ousselghemiana, *Jacobi Nachtrag.* p. 156.

A. micracantha, *var. albidior*, *Salm-dyck in Bonplandia*, vol. vii. p. 87.

Of these comparatively soft-leaved tender Agaves, which compose the group called "*Aloidæ*," only two species, viz. *A. Celsiana*, tab. 4934, and *A. Sartorii*, tab. 6292, have yet been figured in the "Botanical Magazine." My estimate of the total number of species at present known is thirty, but many of these have been described from very imperfect material and are not known in flower. The present plant is closely allied to *A. micracantha* Salm-Dyck (figured in the "Refugium Botanicum" of Saunders, tab. 327), and scarcely more than a variety of that species in a broad sense. It, was introduced into cultivation about 1860, and if, as I believe, *A. Ousselghemiana*, of the Belgian gardens, is identical with it, was first flowered by Count Kerchove d'Ousselghem in 1867. In England it was flowered by Mr. Justus Corderoy, at Blewbury, in 1887. Our drawing was made from a plant that flowered in the Succulent House at Kew, in May, 1891, and was purchased in 1889 at the sale of the late Mr. J. T. Peacock's collection of Succulent plants.

DESCR. Acaulescent. *Leaves* twenty to thirty in a dense rosette, oblanceolate-spathulate, twelve or fifteen inches long, three or four inches broad at the middle, narrowed to two or two and a half inches above the dilated base, coin-

DECEMBER 1ST, 1891.

paratively soft and pliable in texture, persistently glaucous on both surfaces, tipped with a soft brownish spine an inch long, closely margined with minute unequal deltoid brownish prickles. *Peduncle* stiffly erect, three or four times as long as the leaves, furnished with copious erect lanceolate-acuminate scariose bract-leaves. *Spike* oblong, one and a half or two feet long, half a foot in diameter when fully expanded; flowers in pairs, subtended by a large lanceolate-acuminate scariose bract. *Perianth*, including the ovary, an inch and a half long, green outside; segments oblong, brown inside, above half an inch long, twice as long as the funnel-shaped tube. *Stamens* three or four times as long as the perianth-segments. *Style* developed after the stamens, finally reaching up to the anthers.—*J. G. Baker.*

Fig. 1, Margin of leaf; 2, a flower cut open; 3, horizontal section of ovary:—*all enlarged.*



AGAVE AMERICANA; *var. foliis variegatis*. GREAT
AMERICAN ALOE; with variegated leaves.

Class and Order.

HEXANDRIA MONOGYNIA

(Nat. Ord.—BROMELIACEÆ.)

Generic Character.

Corolla infundibuliformis, basi tubulosa; limbo erecto, 6-partito, æquali. *Stamina* exserta, summo tubi inserta; filamentis longis, subulatis, compressis, stiberectis. *Antheræ* magnæ, lineares, versatiles. *Stylus* filiformis, subtrigonus. *Stigma* capitato-trigonum. *Capsula* oblonga v. obovata, subtrigona, trilocularis, polysperma. *Semina* numerosissima, biseriata, plana.

Specific Character and Synonyms.

AGAVE * *Americana*; foliis dentato-spinosis, scapo ramoso, tubo corollæ medio angustato staminibus corolla longioribus stylo subbrevioribus.

AGAVE *Americana*. *Linn. Sp. Pl.* p. 461. *Ruiz et Pav. Fl. Peruv.* v. 3. p. 66. *Humb. et Bonpl. Nov. Gen.* v. I. p. 238. *Andr. Bot. Rep. t.* 438. *Roem. et Sch. Syst. Veget.* v. 7. p. 722. *Spr. Syst. Veget.* v. 2. p. 78.

Var. β. foliorum marginibus flavis. (*Tab. nostr.* 3654.)

The Aloe, that Patriarch of the Flowers, which “ blooms once in a hundred years, and whose blossoms then are developed with such rapidity, as to occasion an explosion resembling the firing of a cannon,” is the theme of a tale that all have heard from their infancy, arid to which many still give credence. In regard to the age at which the plants flower, that is extremely uncertain, and depends much upon the

* From *αγαυος*, *admirable*, on account of the stateliness and grandeur of this plant.

the health and vigour of the individuals, and the degree of heat to which they have been exposed. Many live to a gnat age, and appear never to flower at all. In warm climates twenty-five or thirty years, and probably, a much -shorter period is sufficient to bring them to perfection. The most remarkable instance on record of the early flowering of the *American Aloe* is that detailed by Mr. HAWKINS in the Transactions of the Horticultural Society, v. 4. p. 389. This took place *in the open ground*, at Woodville. near Salcombe, Devonshire, the residence of the late JAMES YATES, Esq., and considering that the plant is a native of South America, mores especially within the tropics, it tells more for the mildness of that part of England, than any circumstance that could be mentioned. The *Aloe* was planted in 1804, when it was only about six inches high, and when the two or three years old, within a few yards of the seashore, yet elevated forty or fifty feet above the level of the water, where it never had any cover, shelter manure or cultivation. In 1812, it was more than five feet high, and it grew during that summer nearly the eighth of an inch daily. In 1820 it measured between ten and eleven feet in height, and covered space, the diameter of which was sixteen feet; its leaves, close to the Stem, being nearly nine inches thick. In the beginning of June of that year, a stem made its appearance, resembling a head of Asparagus, of immense size, which during six weeks grew at the rate of three inches a-day, and then gradually diminished in progress; but not till it had attained the elevation of twenty-seven feet from the ground, which was at about the middle of September. Time two lowest branches first showed flowers on the 3d of September, and others came out in succession from the beginning of October to the end of November, when they all began to lose their colour and to decay. There were upwards of forty flowering bunches, each with between three and four hundred flowers, making in all above sixteen thousand blossoms. As the stem grew, the the leaves began to wither; and it appears the plant then died." "Its age was twenty-one years; the height from the earth when in blossom twenty-seven feet: the lateral branches, beginning at twelve feet from the ground, were in number forty-two, the lowest projecting two feet from the stem, and gradually diminishing to about a foot or nine inches in length at the top: the stalk where the side branches commenced was twenty inches round, or near seven inches in diameter, gradually tapering to the apex: the bunches of flowers (or at least those next the bottom) were from a tot to fourteen inches in breadth."

Although

Although various Instances are on record of this plant having blossomed when confined in a pot or tub, and sheltered from the severity of our climate, yet the occurrence is so rare, as to excite a great deal of interest in the neighbourhood where such an event takes place; and I know not whether the variegated-leaved variety, which is not uncommon in collections, blossoms with equal readiness; not having myself heard of the flowering of that kind, till that which is here represented threw up its flowering stem in the summer of 1836, at Aiken Head, the seat of Mrs. GORDON, where, the garden is under the management of Mr. LAMBIE. In this instance, the whole height of the flower-stalk, was only the half of that. Of Mr. YATES: and the blossoms were few indeed in comparison; yet they came to great perfection, and the plant made a very noble appearance.

But the great size and strange form of this plant, and the rarity of its blossoming in our collections, are not the only circumstances which recommend the *American Aloe* to attention. It yields a drink, and a fibre of such extensive use in the New World that it is reckoned, next to the Maize and the Potato, the most valuable of all the products which nature has lavished on the mountain-population of æquinoctial America: and no where perhaps is it held in greater esteem than Mexico, according to M. de HUMBOLDT, from whose "Essai politique sur le Royaume de la Nouvelle Espagne," I extract the following interesting particulars, bearing on this subject.

"Scarcely," says this distinguished Philosopher, "does there exist a tribe of savages in the world, who are not acquainted with the art of preparing some kind of vegetable drink. The wretched hordes which wander in the forests of Guiana, extract from the fruits of different Palms, a beverage, which is as palatable as the European orgeat. The inhabitants of Easter Island, confined to a mass of barren, springless rocks, mingle the expressed juice of the Sugar Cane with the briny water of the sea. Most civilized nations derive their drink from the same plants as afford them food, and whose roots and seeds contain the saccharine principle mingled with farinaceous. In the Southern and Eastern Asia this is Rice; in Africa and Australia the roots of Ferns, and of some Arums; while in the North of Europe, the Cerealia afford both bread and fermented liquors. Few are the instances of certain plants being cultivated solely with a view to extract beverages from them. Vineyards only exist west of the Indus; in the Old World, and in the golden age of Greece, the culture of the Grape was confined to the countries lying between the Oxus and the Euphrates, in Asia minor, and in Western Europe. In other parts of the world, nature certainly produces several species of Wild Vine; but no where has man attempted to collect, them around them, and improve their quality by cultivation.

The New Continent presents the instance of a people who derived their drinks not only from the farinaceous and sugary substance of *Maize*, *Manioc*, and *Bananas*, or from the pulp of some species of *MIMOSA*, but who cultivated a plant. of the *Pine Apple* family for the express purpose of converting its juice into a spirituous liquor. In the vast plains in the interior of Mexico, there are huge tracts of country where the eye discerns nothing but fields planted with the *Pittes* or *Maguay* (*AGAVE Americana*). This plant, with its leathery and thorny leaves, and which, with the *CACTUS Opuntia*, has become
naturalized

naturalized ever since the sixteenth century, throughout Southern Europe, in the Canary Islands, and on the African coasts, imparts a most peculiar character to the Mexican landscape. What can be more strongly contrasted than a field of yellow *Wheat*, a plantation of the glaucous AGAVE, and a grove of *Bananas*, whose lustrous leaves always preserve their own tender and delicate hue of green! Thus does man, in all latitudes, by introducing and multiplying the various vegetable productions, modify at his pleasure the aspect of the country around him!

“In the Spanish colonies there are several sorts of *Maguay* deserving of careful cultivation; some indeed, which, by the length of the stamens, the mode of division of the corolla, and form of the stigma, may, perhaps, belong to separate genera. The *Maguay* or *Metl*, which is grown in Mexico, consists of several varieties of the *American Aloe* (AGAVE *Americana*), so common in gardens, which has yellow, fascicled, and straight flowers, with stamens twice as long as the divisions of the corolla. This must not be confounded with the *A. Cubensis* of JACQUIN, (*A. Mexicana*, LAMARCK, *A. odorata*, PERSOON,) which has been erroneously supposed to be the *Metl* or *Maguay* of Mexico, but which is extensively grown in the Caraccas, where it is called *Maguay de Cocuy*.

“These plantations extend wherever the Aztèque language is spoken; they cease to the north of Salamanca, and are seen in the greatest luxuriance in the valley of Toluca and the plains of Cholula. There the AGAVE plants are set in rows, distant fifteen decimètres from one another. The juice or sap, commonly called the *honey*, from its abundant sweetness, is only afforded when the flowering-stem is about to appear, so that it is of great importance to the cultivator to ascertain precisely this period. Its approach is indicated by the direction of the root-leaves, which the Indian always watches and examines with great attention, and which, formerly recurved, suddenly take an upward direction, and approximate as if to enclose the incipient flower-stalk. The bunch of central leaves (*corazon*, the *heart*) next assumes a livelier green, and lengthens considerably; indications which the natives assure me hardly ever fail, and to which may be added several other less striking appearances in the general aspect of the plant. Daily does the cultivator examine his AGAVE plantations, to watch those individuals which promise to bloom, and if he himself entertains any doubt, he appeals to the village sages, the old Indians, whose long experience gives them an unerring precision both of touch and eye.

“At eight years old, or thereabouts, the Mexican AGAVE generally shows signs of inflorescence, and then the collection of the juice for making *Pulque* begins. The bunch of central leaves, or *corazon*, is cut through, the incision gradually enlarged and covered by the side leaves, which are raised up and tied together at their tips. In this cleft the sap of those parts which were destined to form and nourish the gigantic flowering-stem is deposited, and this vegetable spring flows for two or three months, and may be tapped three times a day. The quantity of sap is enormous, and the more surprising, as the AGAVE plantations are always made by choice on the most sterile soil, frequently on mere shelves of rock, scantily covered with vegetable earth. Each plant is calculated to yield about one hundred and fifty bottles; and at Pachuca, the value of a *Maguay*, near flowering, is from twenty to twenty-five francs,

francs, or five piastres. Still, as with the Vine, which may bear a greater or less quantity of grapes, the produce is apt to vary, and cannot be precisely calculated. Instances have, however, been known, of a parent bequeathing a plantation of *Maguay* worth from seventy to eighty thousand piastres.

“The cultivation of the AGAVE is attended with many real advantages above that of *Maize*, *Wheat*, or *Potatoes*, as this sturdy, harsh, and fleshy leaved plant is uninjured by the occasional drought, frost, and excessive cold, which prevail in winter on the lofty Cordilleras of Mexico. It dies after having flowered, or when the central bunch of leaves is cut away, and then a number of suckers spring from the parent root, which increase the plant with extraordinary rapidity. One acre of ground will contain from twelve to thirteen hundred plants of *Maguay*, of which it may be calculated that one in every thirteen or fourteen is always affording the honey. Thus the proprietor who sets from thirty to forty thousand *Maguays* is sure of leaving his family rich; though a man must possess patience and resolution to devote himself to cultivating what only becomes productive after an interval of fifteen years. In good soil, the AGAVE blossoms at the end of five years; while in poor ground nothing can be expected under eighteen years; and any artificial means by which the flowering state is unnaturally accelerated, only destroy the plant prematurely, or materially lessen the amount of sap.

“The *honey*, or juice, is of an agreeably bitter-sweet flavour, and ferments readily from the sugar and mucilage with which it abounds, this process being hastened by the addition of some old and acid *pulque*. This vinous liquor resembles cider, but diffuses a disgusting smell of decayed meat, which Europeans have some difficulty in overcoming. Those, however, who have accustomed themselves to the beverage, consider it as strengthening, stomachic, and particularly nutritive, recommending it, peculiarly, to persons of a very meagre habit; and I have seen many whites, who, totally discontinuing water, beer, and wine, drink only the *Pulque*, like so many Mexicans. The cause of the fetid smell of this liquor is variously attributed to the mode of preparation, the manure used for the soil, and the different materials in which the fermentation is carried on; and I only regret, that I was unable, for want of proper apparatus, to ascertain this curious point in vegetable chemistry. By distillation, a most intoxicating spirit is obtained from *Pulque*, which is called *Mexical*, or *Aguardiente* (Fire-water) of *Maguay*. The plant which is preferred for this purpose, appeared to me smaller, and its foliage more glaucous than the common kind; but not having seen it in blossom, I cannot pronounce it to be specifically distinct.

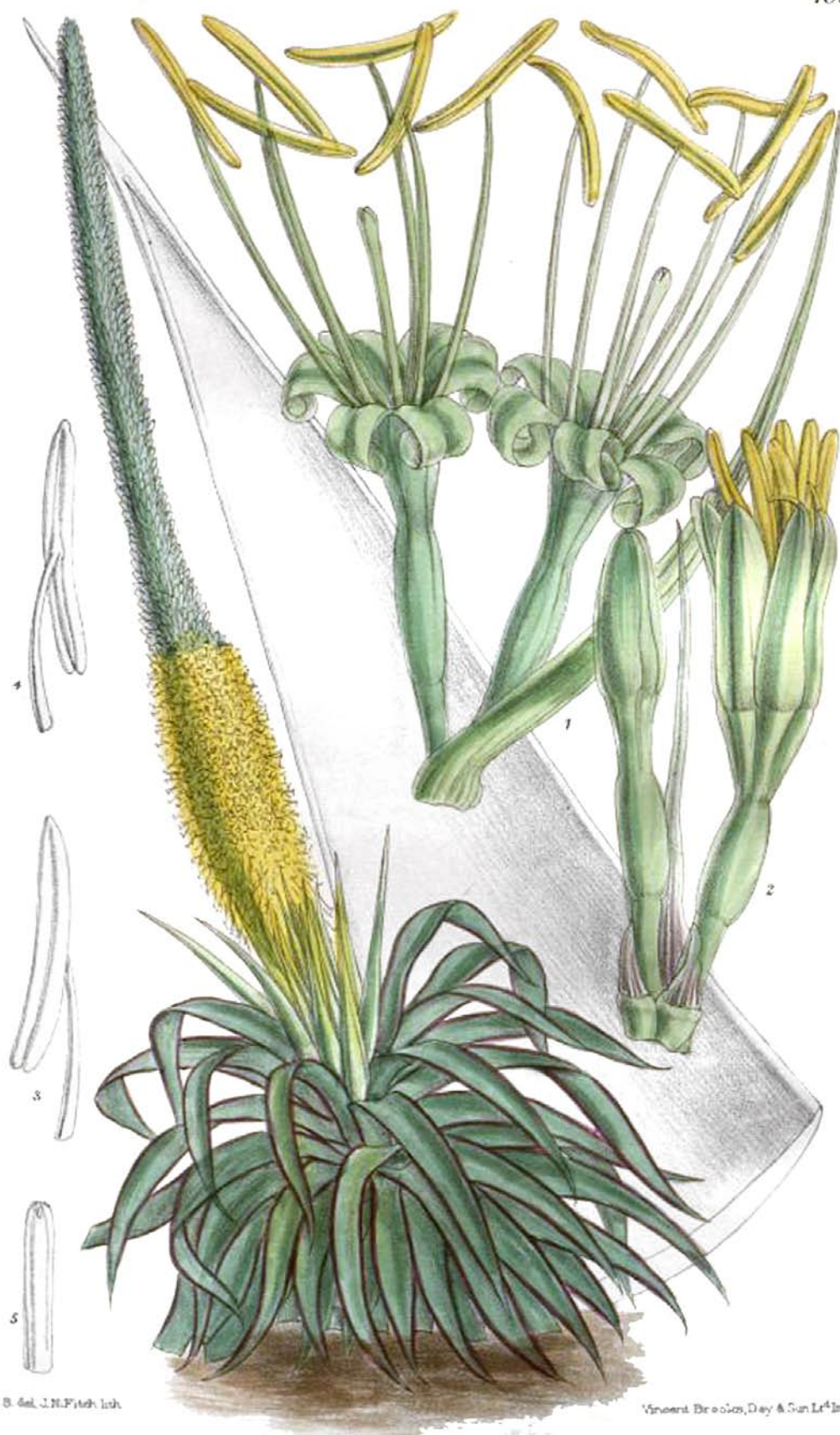
“But not only is the AGAVE the Mexican Vine, but it holds the place of Asiatic Hemp and the *Egyptian Paper-Reed*, (*CYPERUS Papyrus*). The antient manuscripts of this country consisted of hieroglyphics, often inscribed on a paper made of numerous layers of the AGAVE leaf, macerated in water, and glued together in the same manner as the pith of papyrus and the bark of the *Paper Mulberry* (*BROUSSONETIA*) of the Pacific isles. I brought away many antient specimens of this fabric, some as thick as pasteboard, others as thin as fine India paper, which are the more interesting, as all the Mexican records hitherto discovered and still preserved at Rome and in Spain, are inscribed on the skins of the Mexican Deer. No thread is so much prized by physicians in Europe

Europe as that which is extracted from AGAVE leaves, which are sometimes ten feet long, fifteen inches wide and eight thick, because it is not liable to twist; though the fibre of the New Zealand Flax (*PHORMIUM tenax*) excels it in tenacity. Twine, thread, and rope are made of it; the latter is employed in the mines, and, on the western coast, for rigging the ships. The common juice of the plant, or that which it yields when not about to blossom, is highly caustic, and useful for cleansing wounds; while the thorny points of the leaves, like those of the CACTUS, used to serve the Indians for nails and needles. The Mexican priests were accustomed to inflict wounds in that manner on their breasts and arms by way of expiation, as do the Buddhists in Hindostan."

Rarely as the *American Aloe* blossoms in this part of Europe, a friend of mine, who lately visited the shores of the Mediterranean in the North of Spain, tells me, that the brown withered flowering stems often stand there as tall, strong, and thick as the masts of small vessels in a harbour, and are sometimes used for thatching. The height of this stalk varies from twenty to forty feet, and expands like a rich candelabrum, its arms clustered with golden yellow flowers. An extract from the foliage, when made into balls, will lather water like soap; and, finally, the centre of the flower-stalk cut longitudinally is by no means a bad substitute for the European razor-strop, owing to minute particles of silex forming one of its constituents, in the same way as the *Dutch Rushes*, or stems of the *Horsetail* (*EQUISETUM*) are employed to polish ivory and brass. My friend, WILLIAM CHRISTY, Esq., when writing from Guernsey last autumn (1837) says, "in this delightful climate, an AGAVE *Americana* is just coming into flower, in the street of St. Pierre Port. It is twenty-five years old, and already thirty feet high; and has always stood in the open air, summer and winter, without any protection."

DESCR. Leaves radical, imbricated at the base, spreading on all sides, sword-shaped, rigid, flat or slightly grooved above, convex beneath, very acute, glaucous-green, sometimes, as in our variety, bordered with yellow, the margin toothed with short, strong spines, mucronate at the point: they are from four to six feet long. *Scape* from twelve (in our specimen) to twenty and even forty feet high, erect, bearing a panicle of innumerable flowers in dense clusters. *Perianth* yellow-green, the *tube* for the greater part of its length incorporated with the germen, above which is a constriction; *limb* deeply cut into six linear-oblong, erect, obtuse segments. *Filaments* inserted on the short, free portion of the tube, just below the segments, and opposite to them; subulate, much exserted, a little compressed. *Anthers* linear, versatile, deep yellow. *Style* filiform, sometimes about as long as the stamens, sometimes much shorter than they are: *Stigma* capitate, three-lobed: *Germen* obscurely triquetrous, three-celled, the cells many-ovuled.

The principal figure represents the AGAVE *Americana* from the garden at Aiken Head, reduced one twenty-fourth part of the *nat. size*.—Fig. 1. A Flower. 2. The same laid open. 3. Germen cut through transversely: of the *nat. size*.



TAB. 7890.

AGAVE Bakeri.

Native of Mexico ?

Nat. Ord. AMARYLLIDÆ.—Tribe AGAVEÆ.

Genus AGAVE, Linn.; (*Benth. & Hook. f. Gen. Plant.* vol. iii. p. 738.)

AGAVE (Litæa) *Bakeri*; trunco 4-pedali, basi nudo coma 6 ped. diam. e foliis plurimis densissime confertis confecta, foliis 3 ped. longis undique patentirevolutis medio 5 poll. latis loriformi-lanceolatis haud crassis basi angustatis supra planiusculis subtus leviter convexis spina pollicari terminatis, marginibus lævibus purpureis, pedunculo brevi crasso foliis junioribus brevibus erectis cincto, racemo 8–9-pedali stricto erecto cylindraceo, floribus densissime confertis, bracteis floribus æquilongis e basi ovata rubro striata anguste linearibus, bracteolis triangularibus membranaceis rubro striatis pedicellos crassos $\frac{1}{2}$ -pollicares æquantibus, ovariis pollicaribus lineari-obongis teretibus, perianthii tubo ovario æquilongo obconico 6-sulcate, lobi pollicaribus lineari-oblongis obtusis revolutis extus viridibus intus albo-viridibus fascia media saturatiore pictis, filamentis 2-pollicaribus albis, antheris pollicaribus anguste linearibus aureis, stylo filamentis brevioribus apice subclavellato 3-lobulato.

A. *Bakeri*, Hook. f., ex W. Watson in *Garden*, 1902, vol. i. p. 240, *cum ic. reduct.*

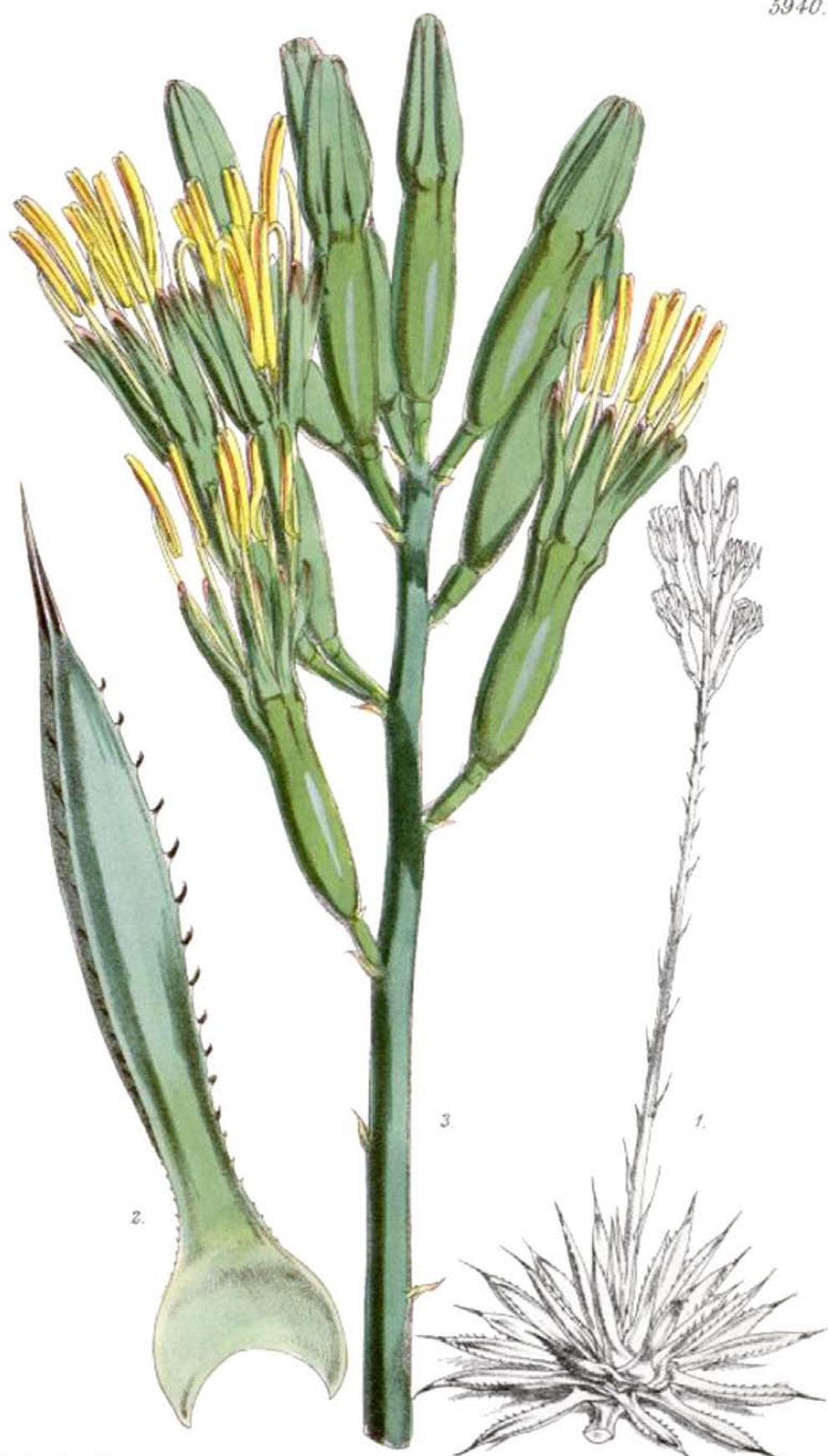
A very distinct species of Agave, purchased for the Royal Gardens, Kew, at the sale of the late Mr. Peacock's noble collection of Cactuses, Aloes, and Agaves in 1889, with no indication of its native country or collector. It flowered in the Mexican division of the Temperate House in January to March, 1902. I have named it after my friend, J. G. Baker, Esq., F.R.S., F.L.S., late Keeper of the Herbarium of the Royal Gardens, Kew, author of the Handbooks of the Amaryllideæ, Irideæ, Bromeliaceæ, and of other works that have been of signal service to Botanists and Horticulturalists.

Descr.—*Trunk* about four feet high, stout, erect, bearing an elongated crown six feet in diameter, of very numerous, spreading and recurved leaves, and a very shortly peduncled, dense-flowered cylindrical raceme of nearly nine feet high. *Leaves* three feet long by five inches broad at the middle, narrowed towards the base, terminated by a spine an inch long, glaucous-green, with a quite entire, narrow, purple margin, coriaceous, slightly concave above, and convex beneath; young leaves erect, crowded round,

APRIL 1ST, 1903.

and concealing the peduncle and base of the raceme. *Raceme* strict, columnar, golden-yellow from the number and size of the anthers. *Bracts* as long as the flowers, tapering from a broad, pale green, striate base to a very slender, almost filiform tip; bracteoles half an inch long, triangular-ovate, about as long as the very stout pedicels, membranous, white, streaked with red. *Ovary* an inch long, narrowly oblong. *Perianth-tube* as long as the ovary, infundibular, six-grooved; segments an inch long, linear-oblong, revolute, tip rounded, dorsally green, very pale, almost white within, with a median, darker green band down the middle. *Filaments* two inches long; anthers an inch long, very narrowly linear, bright yellow. *Style* shorter than the filaments, tip obscurely three-lobed.—*J.D. H.*

Figs. 1 and 2, flowers of the *natural size*, with bracts and bracteoles; 3 and 4, anthers; 5, apex of style:—*enlarged*.



TAB. 5940.

AGAVE BESSERIANA.

Tropical America.

Nat. Ord, AMARYLLIDEÆ.—Tribe. AGAVEÆ.

Genus AGAVE, *Linn.*; (*Endl. Gen. Plant.*, p. 181).

AGAVE *Besseriana*; subcaulescens, foliis 3–6-pollicaribus anguste elliptico-lanceolatis crassissimis rigidis rectis viridi-glauciscentibus, supra lente subtus valde convexis, spina terminali valida elongata marginalibusque remotis uncinatis brunneis, vagina semilunari lamina latiore, bracteis parvis sparsis triangulari-ovatis acutis scapo valido multoties angustioribus inferioribus e basi lanceolata subulatis, floribus paucis racemosis erectis 2-pollicaribus viridibus, perianthii tubo subcylindrico lobis lingulatis erectis obtusis crassis longiore, antheris perianthii segmentis subæquilongis exsertis erectis aurantiacis, stigmatibus obscure lobato.

AGAVE *Besseriana*, *Jacobi in Hamburg Garten-und-Blumen-Zeitung*, 1865, p. 155.

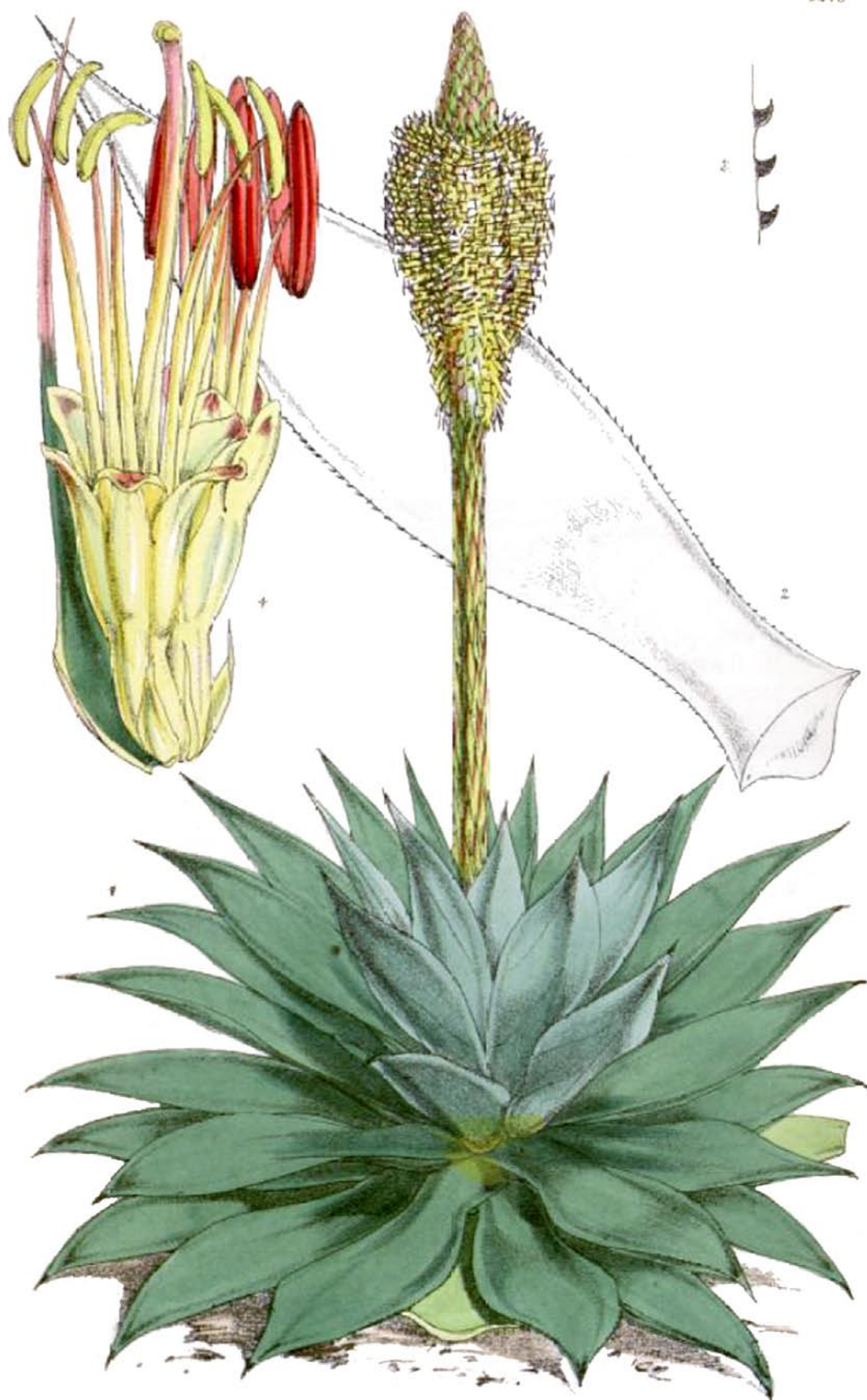
The *Botanical Magazine* has no higher function than that of figuring such plants as are rarely known to flower in this country, and are so difficult of preservation for scientific purposes, or for future identification, that but for good coloured plates they can scarcely ever be recognised. This remark applies especially to Agaves, of which fifteen species have now been illustrated in this work, a very small proportion of the number supposed to exist in European collections. Of these upwards of one hundred are enumerated by Major General Jacobi's "Versuch zu einer systematischen Ordnung der Agaveen" (*Ottos Hamburger Garten-und-Blumenzeitung*, 1864), of which, however, comparatively few have been described from flowering specimens, and many may consequently prove to be mere forms.

A. Besseriana flowered in spring of the present year, in the unique collection of W. Wilson Saunders, Esq., at Hillfield, DECEMBER 1ST, 1871.

Reigate, who has kindly communicated his own drawings, notes, and analysis for insertion in the Magazine; its native country is unknown, but probably Mexico. It was procured from Belgium under the name of *A. Bessariana hystrix*, and agrees with Jacobi's description in every detail.

DESCR. *Stemless*. *Leaves* thirty to forty in a dense rosette, five to six inches long, two thirds to three-quarters of an inch broad about the middle, narrowly elliptic-lanceolate, gradually contracted into a rigid brown spine an inch long, contracted at the base, and suddenly dilated into a broad semilunar sheath, upper surface slightly convex except towards the tip, under very convex; colour pale glaucous-green; marginal spines one-twelfth to one-tenth of an inch, upcurved, distant, brown. *Scape* two feet three inches high, stout, stiff, sparsely bracteate; lower bracts erect, one inch long, subulate from a lanceolate base, upper triangular, acute, small; all much narrower at their base than the scape. *Flowers* about ten, two to two and half inches long excluding the large anthers, solitary or geminate; peduncle half an inch long, with two or three minute bracteoles, and a triangular basal bract. *Perianth-tube* one and a half inches long, terete, narrowly urceolate, 6-furrowed at the top, dark green; lobes erect, half an inch long, narrowly tongue-shaped, obtuse, convex, contracted at their insertion; green on both surfaces, tinged with brown towards the tips. *Filaments* yellow-green, subulate, erect, rather longer than the perianth-lobes; anthers linear, rather shorter than the filaments, orange-yellow.—*J. D. H.*

Fig. 1. Whole plant:—*reduced*; 2, leaf and 3, inflorescence:—*of the natural size*.



TAB. 6248.

AGAVE BOTTERI.

Native of Mexico.

Nat. Ord. AMARYLLIDACEÆ.—Tribe AGAVEÆ, Linn.

AGAVE, (*Jacobi in Hamburg Gartenzeitung*, vols. xx et seq.)

AGAVE (*Littæa*) *Botteri*; acaulis, foliis 40–50 oblongo v. oblanceolato-spathulatis coriaceo-carnosis pallide vix glauco-viridibus medio poll. crassis facie concavis, apice in spinam atram pungentem productis margine dentibus deltoideis corneis fusco-nigris crebris antrorsum falcatis armatis, scapo robusto 4-pedali, floribus geminis in spicam magnam cylindricam confertis, bracteis lanceolatis cuspidatis, bracteolis lanceolatis parvis, perianthio viridulo infundibulari bipollicari tubo ovario brevior, segmentis oblongo-lanceolatis diu ascendentibus, genitalibus perianthio subduplo longioribus.

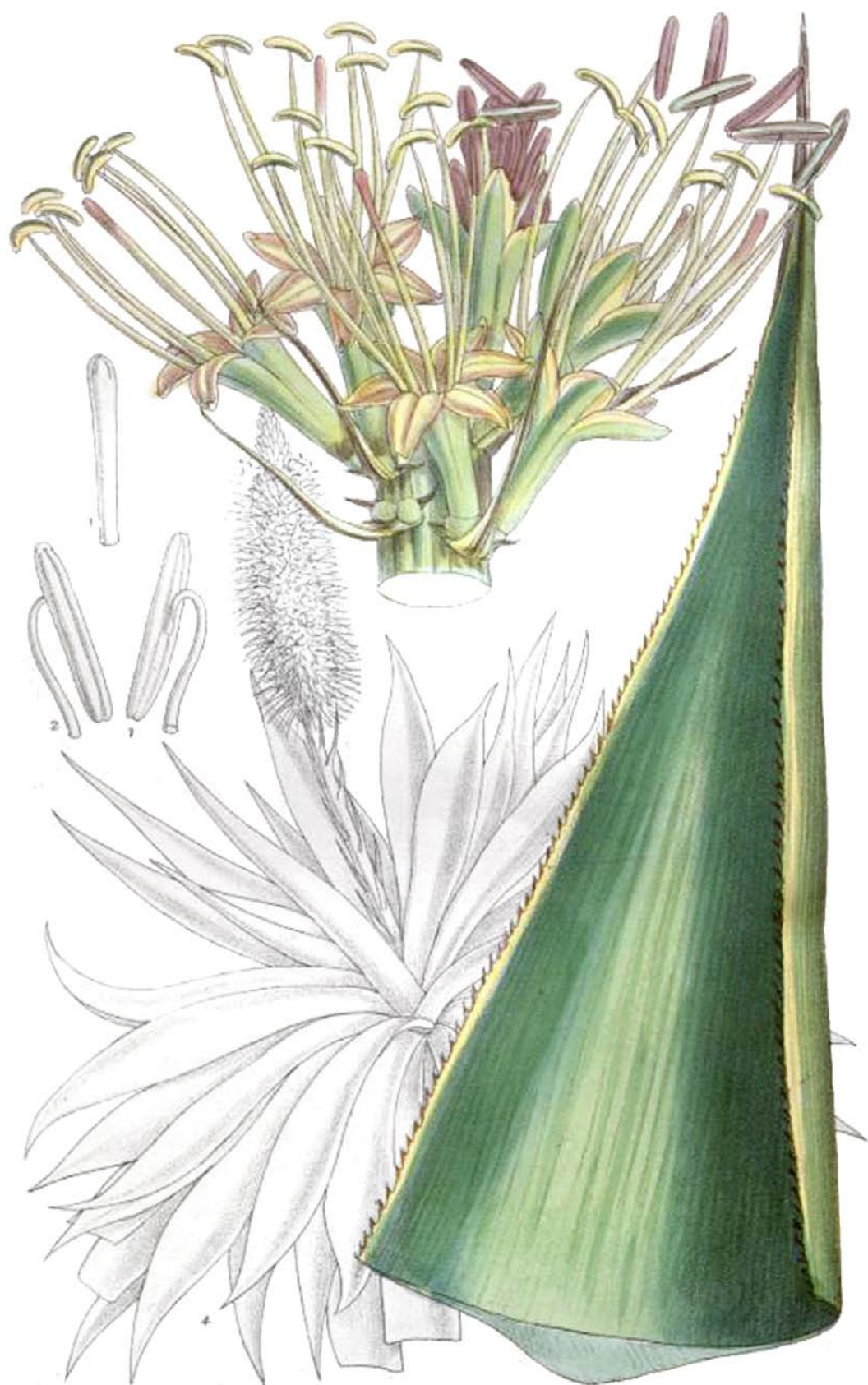
This plant was sent a long time ago from Mexico by M. Botteri to Mr. Wilson Saunders, and I knew it for many years in the Reigate collection. When this was dispersed it was purchased by Mr. J. T. Peacock, with whom it flowered, at Sudbury House, Hammersmith, in the spring of 1875. I have not been able to refer it to any of the species described in the elaborate monograph of the late General Von Jacobi. It is a *Littæa* as regards inflorescence, and, according to his classification, founded on characters, falls into the group “Subcoriaceæ,” which combines the small teeth of the “Al-oideæ,” with a much thinner leaf, with the firmer texture of the large-spined paniced species of the series of which *A. americana* and *Scolymus* are best known representatives. Its nearest neighbours are *A. densiflora*, Hook. in Bot. Mag., t. 5006, the plant called *A. Keratto*, by Salmdyck and Jacobi (which is not the original *Keratto* of Miller), and *A. xalapensis*, Roezl; Jacobi Monog., 72, which I cannot distinguish from *A. polyacantha* “Haworth,” K. Koch; but in all these the leaves are at least five or six times as long as broad, oblanceolate, not oblanceolate-oblong.

DESCR. *Leaves* 40–50 in a sessile rosette, oblanceolate- or oblong-spathulate, two feet long, six to eight inches broad above the middle, narrowed gradually to a pungent dark-coloured channelled spine half an inch long, and downwards to a breadth

of 4–5 inches above the dilated base, one eighth of an inch thick in the centre, rigidly coriaceous in texture, concave on the face, pale green and hardly at all glaucous when mature, the margin armed with close deltoid upcurved horny teeth about one eighth of an inch long. *Scape* stout, twice as long as the leaves, hidden by the adpressed linear bract-like leaves. *Inflorescence* a dense spike, longer than the leaves; flowers in pairs; primary bracts lanceolate, with a long cusp; bracteoles small, lanceolate. *Ovary* oblong. *Perianth* green, funnel-shaped, two inches long, with a distinct funnel-shaped tube half an inch long; segments oblong-lanceolate, permanently ascending, nearly an inch long. *Stamens* inserted near the throat of the tube; filaments subulate two and a half inches long; anthers red, an inch long. *Style* three and a half inches long, stigma capitate.

J. G. Baker.

Fig. 1. The whole plant, *much reduced*; 2, a single leaf, *much reduced*; 3, portion of the edge of the leaf, with teeth, *natural size*; 4, pair of flowers, with bract and bracteoles, *natural size*.



M.S. del J.N. Pritch lith.

Vincent Brooks, Day & Son Imp.

J. Rees & Co London

TAB. 7558.
AGAVE BOUCHEI.
Native of Mexico.

Nat. Ord. AMARYLLIDÆ.—Tribe AGAVÆ.

Genus AGAVE, Linn.; (*Benth. & Hook. f. Gen. Plant*, vol. iii. p. 733.)

AGAVE (Littæa) *Bouchei*; candice brevi cylindrico polycarpico, foliis 30–40 dense rosulatis oblongo-lanceolatis facie concavis adultis utrinque viridibus junioribus leviter glaucescentibus spinâ brevi vix pungente terminatis, spinulis marginalibus crebris minutis deltoideis castaneis, pedunculo valido brevi, floribus geminis in spicam densam aggregatis, bracteis linearibus elongatis, bracteolis parvis deltoideis, ovario oblongo, perianthii tubo brevi late infundibulari, lobis oblongis, filamentis lobis quadruplo longioribus, antheris linearibus, fructu parvo oblongo.

A. Bouchei, *Jacobi, Monogr. Agave*, p. 120. *Baker in Gard. Chron*, 1877, p. 717; *Handb. Amaryllid.* p. 191.

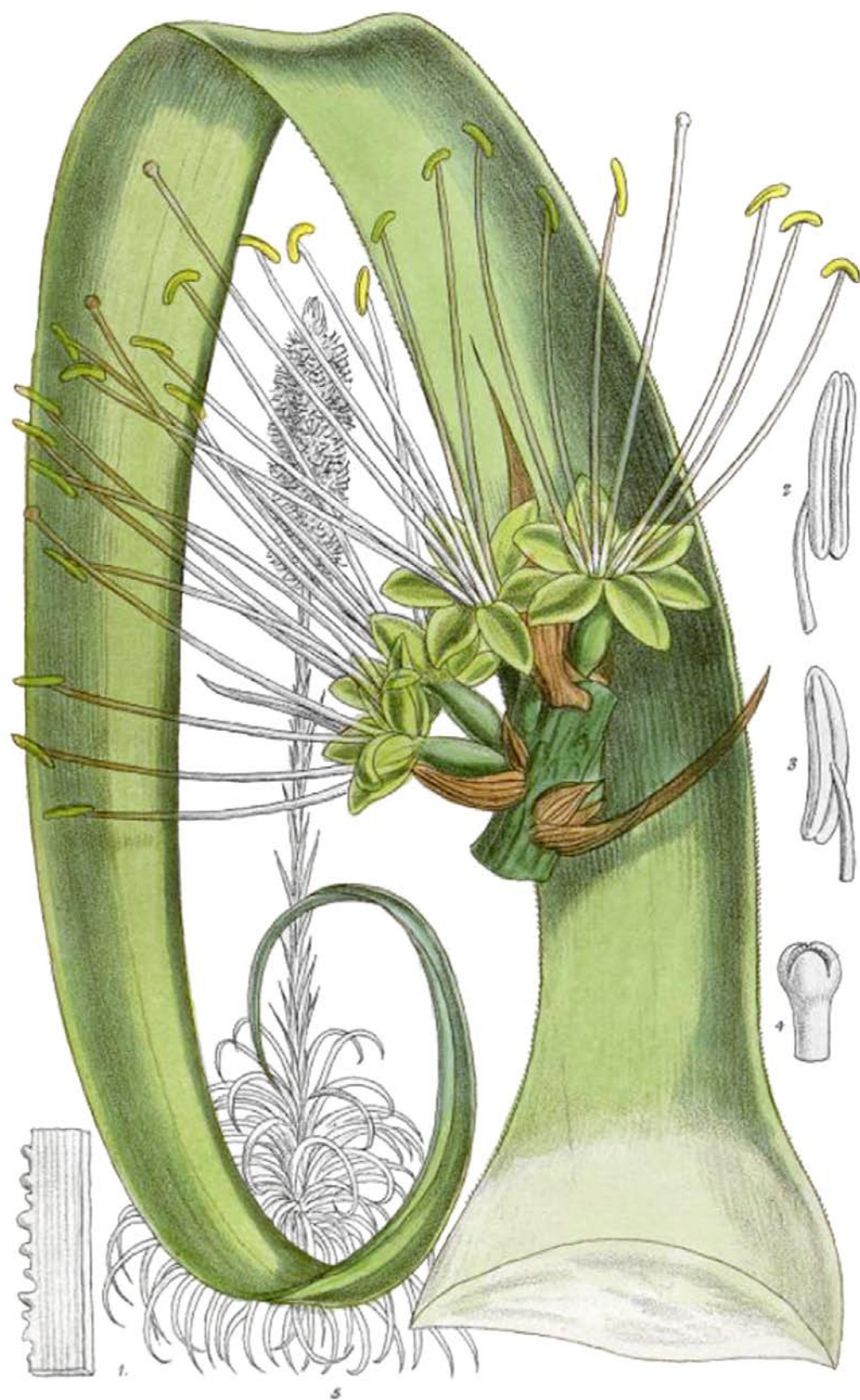
This Agave is one of the few species that have a firm, woody trunk, and do not die after flowering. It belongs to the group called *Carnoso-coriaceæ*, in which the leaves are less rigid and more fleshy than in the best-known species of the genus, such as *A. americana* and *rigida*, and which are much less frequent in cultivation. The present plant was introduced into the Berlin Botanic Garden in 1861, and after it had flowered in 1864 was named by General Jacobi in compliment to Inspector Bouché. It has been in the Royal Garden at Kew for at least twenty years, but has never flowered till the summer of 1896.

Descr.—*Peduncle* stout, woody, polycarpic, nearly as long as the leaves, bearing in the Kew plant, two rosettes of leaves crowded at its apex. *Leaves* thirty or forty in a dense rosette, oblong-lanceolate, rather fleshy in texture, a foot and a half or two feet long, three or four inches broad at the middle, concave all down the face, a sixth of an inch thick in the centre, green on both surfaces when mature, slightly glaucous when young; end spine short and weak; marginal teeth very small, crowded, deltoid, red-brown. *Peduncle* short and stout. *Spike* dense, two feet long in the Kew plant; flowers in pairs, subtended by a long bract, and a pair of small bracteoles. *Perianth*

OCTOBER 1ST, 1897

greenish-yellow, an inch and a half long, including the ovary; tube short; lobes of the limb oblong. Stamens inserted at the throat of the perianth-tube, two inches long; anthers linear, half an inch long. *Style* finally overtopping the anthers. *Capsule* small, oblong.—*J. G. Baker*.

Fig. 1, Back view of anther; 2, front view of anther; 3, apex of style, *all enlarged*; 4, whole plant, *much reduced*.



TAB. 8581.

AGAVE BRACTEOSA.

Northern Mexico.

AMARYLLIDACEÆ. Tribe AGAVEÆ.

AGAVE, *Linn. Benth. et Hook. f. Gen. Plant.* vol. iii. p. 788; *Baker, Handb. Amaryll.* p. 188.

Agave bracteosa, *S. Wats. ex Engelm. in Gard. Chron.*, 1882, vol. xviii. p. 776, fig. 188–189; *S. Wats. in Proc. Amer. Acad.* vol. xviii. p. 162 (1883); *Baker, Handb. Amaryll.* p. 192; *Hemsl. in Biol. Centr.-Amer.* vol. iii. p. 340; species *A. pruinosa*, Lemaire, affinis, sed planta acaulescente folisque e basi dilatata ad apicem gradatim attenuatis differt.

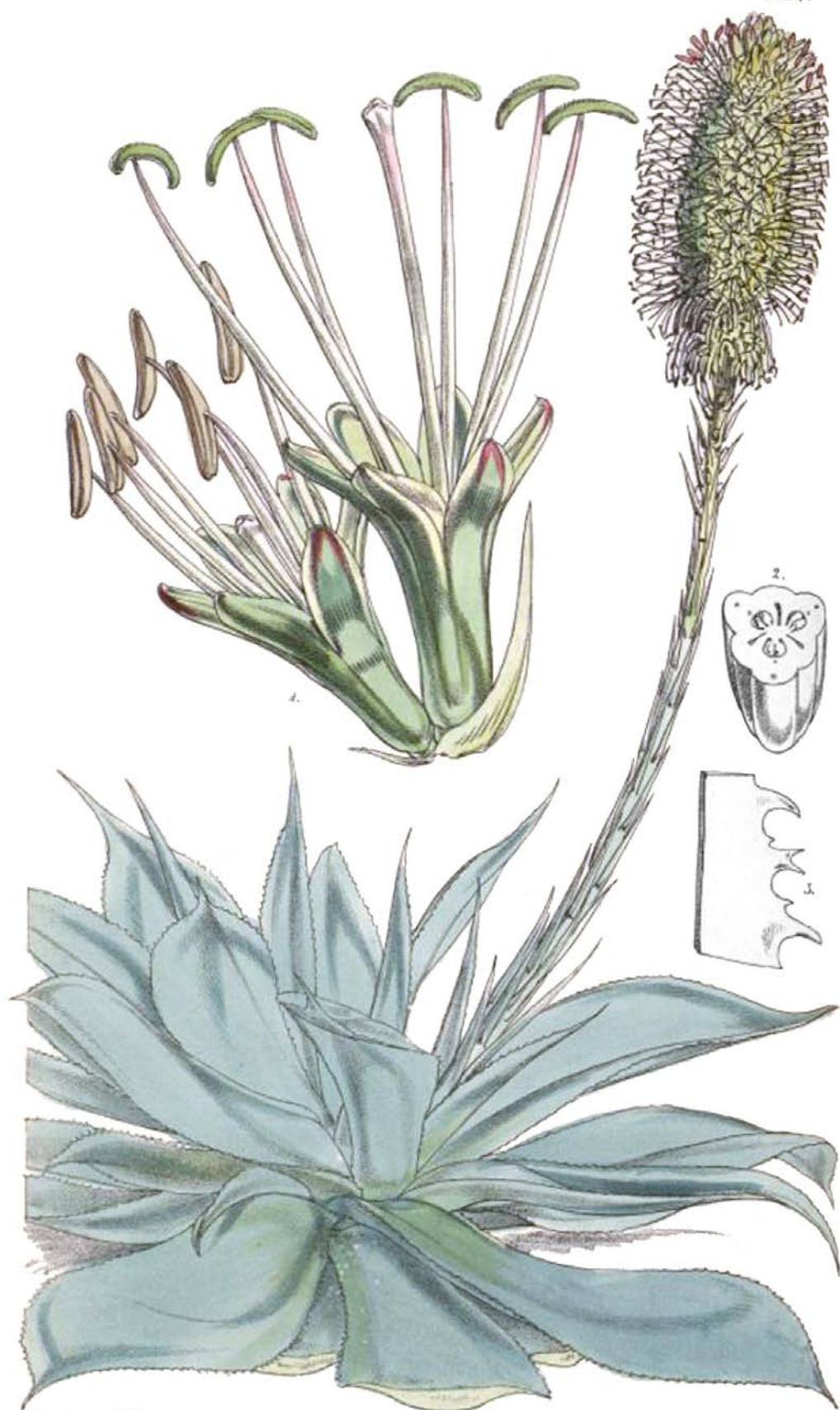
Frutex; acaulescens. *Folia* circiter 50 rosulatis disposita, e basi 6 cm. lat et 1·5 cm. crassa ad apicem longe acuminatum gradatim attenuata, 60 cm. longa, supra basin 3·5 cm. lata, primum sursum curvata, demum valide decurva, plano-convexa, marginibus tenuibus minute denseque albo-dentatis, subscabrida. *Pedunculus* 12 dm. altus; bractee plures, subulatae, recurvatae, ad 15 cm. longae; spica 60 cm. longa, densiflora. *Perianthum* viride, segmentis albo-marginatis; tubus brevissimus; segmenta ovato-oblonga, obtusa, patentia, 12 mm. longa, 7 mm. lata. *Filamenta* filiformia, alba, 6 cm. longa; antherae oblongae, luteae, 8 mm. longae. *Ovarium* fusiforme, viride, 15 mm. longae, 5 mm. diametro; stylus albus, stamina demum paulo superans; stigma punctiforme. *Capsula* oblonga, obtusa, 2 cm. longa. — C. H. WRIGHT.

The *Agave* which forms the subject of our illustration is a very distinct species belong to the section *Littaea* which differs from *A. pruinosa*, Lemaire, where the leaves are also finely dentate, in having the leaves gradually tapered upwards from a short thickened base, whereas in *A. pruinosa* the leaves are oblong-ob lanceolate, and are four inches broad or broader above the middle, but contract to two and a half inches or less just above the base. When first described *A. bracteosa* was believed to have about fifteen leaves in its rosette, but under cultivation the plants have developed many more. *A. bracteosa* was discovered by Dr. E. Palmer about fifteen miles from Monterey the province of Nuevo Leon in Northern Mexico, and was introduced by him to the Harvard Botanic Garden, where it flowered for the first time in 1881. It was met with again by Mr. Pringle in the same district in June 1889, growing on 'dry calcareous mountain walls.' The plant from which the material for our
OCTOBER, 1914.

figure has been obtained was received at Kew in 1888 from the Botanic Garden at Washington. It flowered here for the first time in the Succulent House in July 1910, and a second plant of the same batch has flowered in the same month in 1914. Before perishing the 1910 plant matured seeds from which a supply of seedlings have been raised. The facies of this species renders it very distinct among the *Agaves*; the younger leaves show a strong sigmoid upward curve; afterwards they become strongly decurved. Another *Agave* with a somewhat similar appearance is *A. yuccaefolia*, DC., figured at t. 5213 of this work. This species differs, however, from *A. bracteosa* in having a short stem. Its yellow filaments, flushed with red, are much shorter in proportion to the size of the perianth than is the case in *A. bracteosa*.

DESCRIPTION.—*Shrub*; almost stemless, *Leaves* about 50 in a basal rosette, $2\frac{1}{2}$ in. wide and $\frac{2}{3}$ in. thick at the base, just above the base abruptly narrowed to $1\frac{1}{4}$ in., thence gradually tapering to a long acuminate tip, at first curved upwards, at length strongly decurved. plano-convex, the thin margins closely and finely white-denticulate, rather scabrid. *Pole* 6 ft. high, the peduncle 4 ft. long, the spike 2 ft. long; bracts numerous, subulate, up to 6 in. long, recurved; spike dense-flowered. *Perianth* green, segments white-margined, ovate-oblong, obtuse, spreading, $\frac{1}{2}$ in. long, $\frac{1}{4}$ in. wide; tube very short. *Filaments* filiform, white, $2\frac{1}{4}$ in. long; anthers oblong, yellow, $\frac{1}{3}$ in. long. *Ovary* fusiform, green, $\frac{2}{3}$ in. long, in wide; style white, ultimately rather longer than the stamens; stigma minute. *Capsule* oblong, obtuse, $\frac{3}{4}$ in. long.

Fig. 1, portion of leaf-edge; 2 and 8. anthers: 4, Stigma: 5, sketch of an entire Plant:—all enlarged except 5, which is much reduced.



AGAVE CELSII.

Cels's Agave.

Nat. Ord. AMARYLLIDÆÆ.—HEXANDRIA MONOGYNIA.

Gen. Char. *Perigonium* corollinum, superum, infundibuliforme, persistens, limbi sexpartiti laciniis subæqualibus. *Stamina* 6, tubo perigonii inserta; *filamenta* filiformia, æstivatione inflexa, sub anthesi exserta; *antheræ* lineares, versatiles. *Ovarium* inferum, triloculare. *Ovula* plurima, in loculorum angulo centrali biseriata, horizontalia, anatropa. *Stylus* filiformis, exsertus, cavus, apice pervius; *stigma* capitato-trigonum. *Capsula* coriacea, trigono-triquetra, trilocularis, loculicido-trivalvis. *Semina* plurima, plano-compressa; *testa* chartacea, marginata; *raphe* laterali, umbilicum prope basin lateralem *chalazæ* subapicali jungente. *Embryo* cylindricus, axilis, albuminis carnosius longitudine, extremitate radiculari umbilicum spectante.—Herbæ *acaules* v. *caulescentes*, interdum *gigantæ*, *longævæ*, sed semel florentes, in America tropica et subtropica cis æquatorem indigenæ, quædam nunc a mortalibus late diffuse; foliis radicalibus carnosius, interdum maximis, marginibus spinosis; floribus in scapo radicali bracteato paniculatis, numerosissimis. *Endl.*

AGAVE *Celsii*; acaulis, tota glauca, foliis (bipedalibus) obovato-lanceolatis valde sed brevi anguste acuminatis inæqualiter dentatis dentibus rectis curvatisve simplicibus v. furcatis, scapo (4-pedali) toto bracteato bracteis inferioribus subfoliiformibus superioribus sensim magis subulatis, spica oblonga multiflora, floribus subgeminis, perianthio infundibuliformi (viridi) crassiusculo, limbi laciniis ovatis acutis, filamentis styloque perianthio plus quam duplo longioribus.

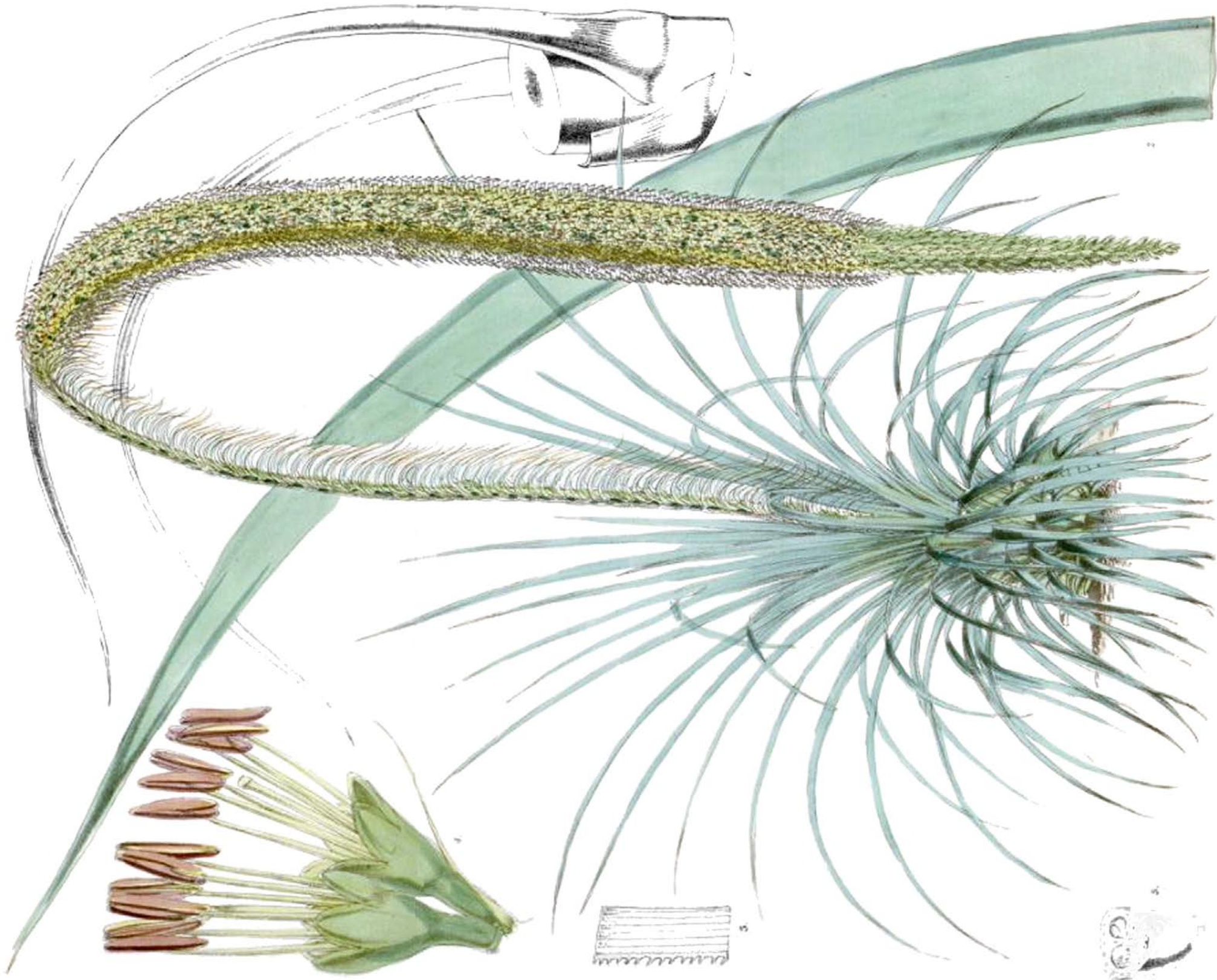
This fine *Agave* was received many years ago from the garden of M. Cels, at Paris, as an unknown species, and equally unknown as to its native country—probably Mexico. It does not appear to be anywhere described, but is distinguished from every other with which we are acquainted by its singularly glaucous foliage, more resembling that of some *Aloe* than an *Agave*. It flowered in May and June of the present year, for the first time with us.

DESCR. *Stem* none, or scarcely rising above the surface of the ground. *Leaves* one and a half to two feet long, obovato-lanceolate, suddenly and sharply acuminate, nearly plane above, more convex beneath, the margin beset with short spines very

AUGUST 1ST, 1856.

variable in shape, straight or falcate, simple or more or less equally bifid or denticulate at the margin; the whole of a pale very glaucous green colour. *Scape* four feet long, entirely clothed with imbricated *bracts*, leaf-like (but smaller than the leaves) at the base, the root of the bracts gradually becoming smaller and more subulate upwards. *Spike* oblong, simple. *Flowers* generally two from the same, or nearly the same, point, and each subtended by one or two subulate *bracts* from a quarter to three-quarters of an inch long. *Perianth* articulated upon an annular disc, two inches long or nearly so, fleshy, green, sometimes tinged with purple, infundibuliform: the tube furrowed: the *limb* of six, moderately spreading, ovate, acute, slightly concave segments. *Stamens* six: *filaments* twice as long as the perianth, erect, subulate, bearing a long, linear, two-celled *anther*, fixed by the centre of the back, purplish-brown, afterwards green. *Ovary* oblong, furrowed, three-celled: *ovules* in two linear rows in each cell. *Style* as long as the stamens, filiform. *Stigma* obscurely three-lobed.

Fig. 1. Young and fully-expanded flower. 2. Section of ovary. 3. Portion of the margin of the leaf:—*magnified*.



AGAVE DASYLIRIOIDES.

Dasylirion-like Agave.

Nat. Ord. AMARYLLIDÆE.—HEXANDRIA MONOGYNIA.

Gen. Char. (*Vide supra*, TAB. 5333.)

AGAVE *dasyliroides*; acaulis, foliis numerosissimis coriaceis anguste ensiformibus patenti-recurvis longe attenuato-acuminatis marginibus pectinatim serrulatis utrinque convexiusculis pallide glauco-viridibus striolatis, scapo longissimo, parte nudo suberecto bracteis numerosissimis falcato-secundis crinito, parte florifero elongato dependente, spica densissima cylindrica, floribus 2-nis viridibus, perianthio subcampanulato 6-lobo, lobis brevibus obtusis, staminibus strictis perianthio cum ovario æquilongis, antheris brunneis.

AGAVE *dasyliroides*. *Jacobi et Bouché in Hamburg Gartenzeit.* v. 21. p. 344, et v. 22. p. 269.

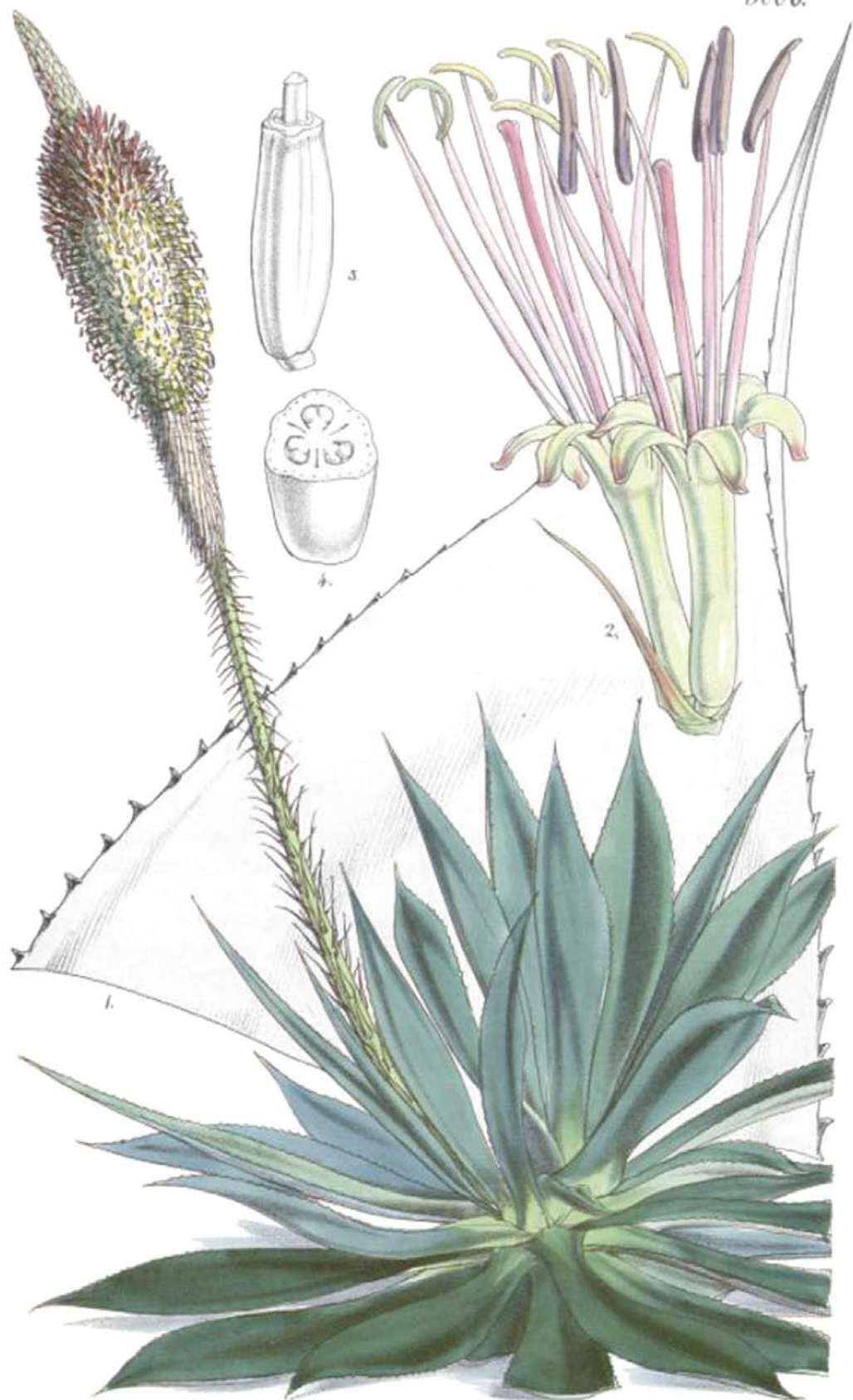
The noble Agave here figured has been a very conspicuous plant in the conservatory of the Regent's Park Botanic Gardens, where it has flowered three times, on each occasion presenting the same remarkable appearance that our drawing conveys. Mr. Sowerby informs me that it was raised from a packet of seeds sent from Mexico about twenty-five years ago, amongst which seeds were also those of the *Fourcroya longæva*, figured in this Magazine (Tab. 5519). This Agave first flowered in about 1860, and again in 1864, and lastly in January of the present year; on each occasion the old head died away, and a new one formed at its base. For the reduced drawing of the entire plant here given, I am indebted to a lady friend of Mr. Sowerby's. The leaves were three and a half to four feet long, the flower-stem ten feet and a half high, and the crowded sickle-shaped, one-sided bracts on which produced a no less remarkable appearance than the pendulous habit of the floriferous parts. My authority for the specific name of *dasyliroides* is General Jacobi, who says that the same species is cultivated in the Vienna Botanic Garden. Koch, however, considers it the

JULY 1ST, 1868.

same with *A. dealbata*, Lemaire, a plant I have no means of comparing it with.

DESCR. *Stem* in our specimen very short or none. *Leaves* three and a half to four feet long, very numerous, the central erect, the others recurved, narrow ensiform, an inch to an inch and a half broad, rather convex on both surfaces, sharply but minutely pectinately toothed, dull glaucous-green, striated. *Scape* ten and a half feet long, flowering portion sharply recurved, and quite pendulous; lower part most densely clothed with subulate, ensiform, curved, falcate, secund bracts. *Bracts* all similar, and with a similar curvature, the lowest one foot long, the upper gradually smaller. *Inflorescence* a very dense, cylindric, pendulous spike, five feet long, green, dotted with the brown anthers. *Flowering-bracts* subulate, longer than the flowers. *Flowers* sessile, pale green, in pairs, an inch and three-quarters long, exclusive of the stamens; ovary cylindric, rather shorter than the campanulate, six-cleft perianth, whose lobes are short, obtuse, concave, and nerveless. *Filaments* as long as the flowers, stout, strict; *anthers* linear-oblong, bright red-brown.—*J. D. H.*

Fig. 1. Portion of scape and bracts. 2. Upper portion of leaf. 3. Margin of leaf. 4. Flowers. 5. Transverse section of ovary:—*all but 3 and 4 of the natural size.*



TAB. 5006.

AGAVE DENSIFLORA.

Close-flowered Agave.

Nat. Ord. AMARYLLIDÆ.—HEXANDRIA MONOGYNIA.

Gen. Char. (Vide supra, sub TAB. 4934.)

AGAVE *densiflora*; acaulis, foliis subtripedalibus obovato-lanceolatis crassis rigidis atro-virentibus inæqualiter breviter spinoso-dentatis apice tenuiter acuminatis spinescentibus dentibus remotiusculis simplicibus supra planis vel apicem versus concavis, dorso convexo, scapo folia longe superantibus 5–6-pedali fere ad basin squamis seu bracteis longis subulatis erectiusculis vel appressis, spica elongata fusiformi, floribus sessilibus numerosissimis ad basin bracteatis, bractea elongato-subulata, perianthio flavo-viridi hypocrateriformi tubo subcylindræo limbi laciniis linearibus reflexis apice sphacelatis, filamentis fusiformibus styloque perianthio plus quam duplo longioribus.

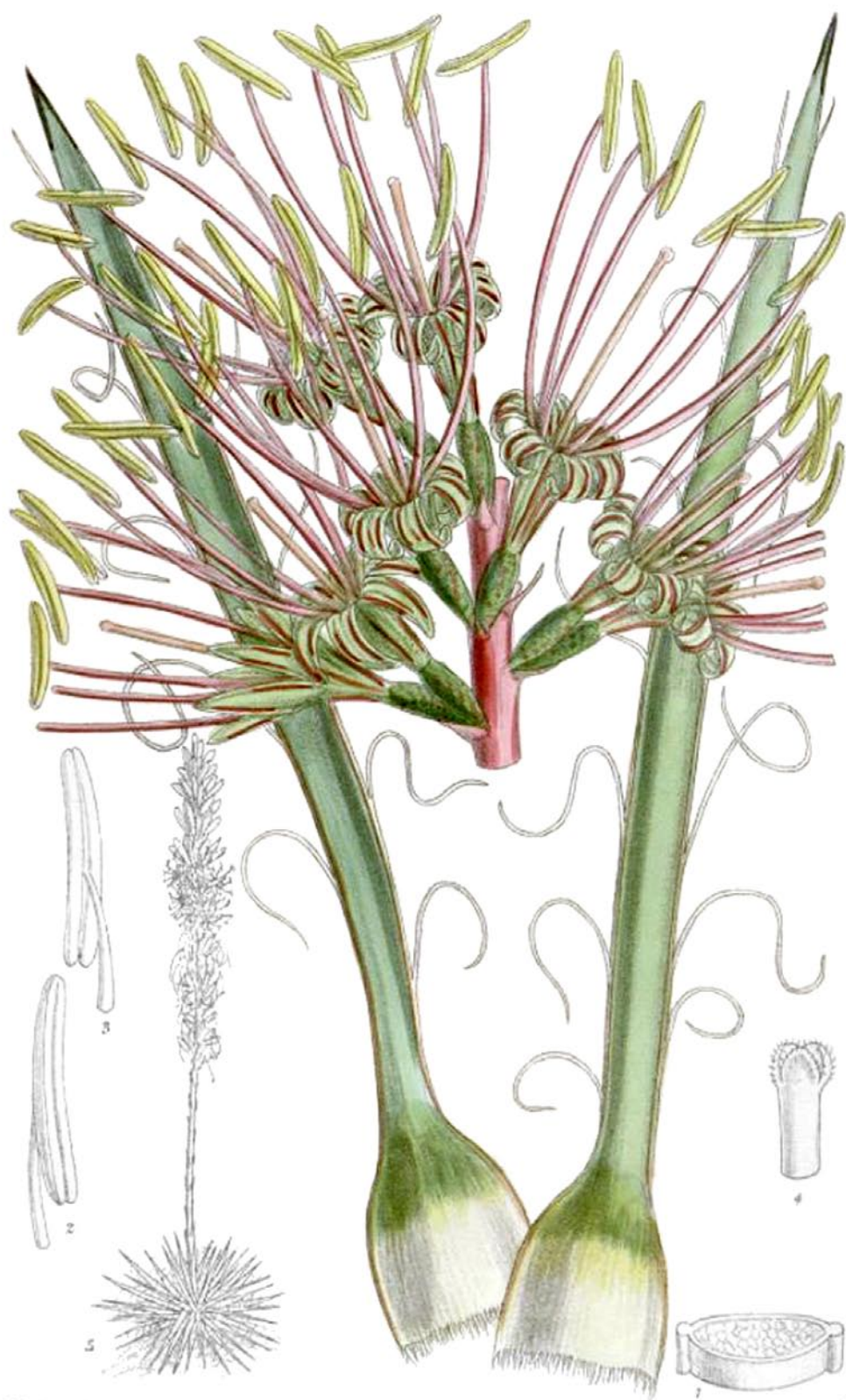
The Succulent-house of the Royal Gardens of Kew contains two fine plants of an unnamed *Agave* which are supposed to have been imported from Mexico, and which, during the present year, have (both) produced their fine flowering scapes. One of these is here figured upon a very reduced scale; but I regret to say that, with all the advantages of flower and fruit before me, I am unable to refer it to any described species. Kunth, the most recent author on the genus, describes thirty-eight species, included under three primary groups; 1. *Scape paniculato-ramose*; 2. *Scape simple, flowers spiked and sessile* (to which our plant belongs); 3. *Species mihi haud classificande*. With none of the species there described will our plant accord. I have no alternative then, but, as with the allied *Agave* (that is, belonging to the same section) figured at our TAB. 4934, to describe it as new.

DESCR. *Stem* none. *Leaves*, external ones horizontally spreading, the rest gradually more erect, and the central ones quite so, lanceolate, dilated at the base, finely pungently and spinulosely acuminate at the apex, four to five inches broad, convex on the under side, nearly plain or canaliculate above, or concave below

SEPTEMBER 1ST, 1857.

the extremity, the *substance* thick, firm, coriaceous, of a full dark green colour (not at all glaucescent), the margin spinoso-dentate, *spines* erecto-patent, short, with a broad base, suddenly acuminate, scarcely a line long, hard, horny, almost black. *Scape*, including the spike, nearly six feet long, more than an inch thick, arising from among the inferior leaves, or terminal, bearing two or three small narrow leaves at the base; these leaves suddenly pass into long (three to four inches), subulate, membranaceous *bracts*, at first green, then pale brown, numerous, more or less erect, or spreading, or even deflexed. *Spike* gradually elongating as the flowers advance, at length a foot and more long in the state of the densely compacted innumerable *flower-buds*, cylindrical, acuminate, pale green. The *flowers* expand from below upwards, and soon the spike takes a broad fusiform shape, below narrow, and brownish with the withered reflected flowers, then a broad band of yellowish flowers past perfection, but not withered: these are succeeded by the rich purple of the stamens and pistils of the recently opened blossoms, and the apex is formed by the unexpanded buds. *Flowers* often only stamiferous, all densely crowded, sessile, each pair subtended by a subulate *bractea*. *Perianth* yellow-green, hypocrateriform; segments of the limb patenti-reflexed, sphacelate at the point. *Filaments* more than twice as long as the perianth, tapering at each end, hence fusiform, purple. *Anthers* long-linear, versatile, dark purple, yellow when burst, from the copious pollen. *Ovary* elliptical, somewhat angled, three-celled; seeds many, in two rows in each cell. *Style* shorter than the stamens, stout filiform. *Stigma* obtuse, a little dilated.

Flowering plant, *greatly reduced*. Fig. 1. Apex of a leaf, *nat. size*. 2. Pair of flowers and bract. 3. Ovary. 4. Transverse section of ditto:—*magnified*.



M.S. det. J. N. P. Smith

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TAB. 8451.

AGAVE DISCEPTATA.

Central America ?

AMARYLLIDACEAE. Tribe AGAVEAE.

AGAVE, *Linn.*; *Benth. et Hook. f. Gen. Plant.* vol. iii. p. 738.

Agave (Littaea) **disceptata**, *J. R. Drumm.*; species e grege *A. gemniflorae*, Scannag., et *A. angustissimae*, Engelm., maxime affinis, ab eis autem ob perigonii tubum conspicue brevioris et ob ovarium haud angustatum facile distinguenda.

Sffrutex, trunco perbrevis foliis sat congestis rosulatis dispositis celato. *Folia* fibroso-coriacea, exteriora patentia nec recurva, intermedia recta ascendunt, interiora plus minusve incurva, pedetentim in bracteas abeuntia, lineari-loriformia, parte superiore leniter angustata, basi primum tenui, tunc in pulvinum modicum excrecente, infra quadraeformi, supra ovato-lanceolata, ad 4–5 cm. ultra basin in collum sensim contracta, versus apicem sat obtusum gradatim attenuata ibique spina vix 5 mm. longa armata, pulvino incluso circiter 17 cm. longa, ima basi vix 2.5 cm. lata, apud collum fere 7 mm., ultra collum circiter 10 mm. lata, pulvini medio fere 12 mm. crassa, utraque facie parum convexa, laevigata, laete viridia, in parte superiore praesertim subtus lineis lacteis irregulariter notata, margine subpapyracea, tandem filamentoso-dilacerata. *Scapus* 1.65 m. altus, pedunculo circiter 8 dm. longo bracteis subscariosis elongatis instructo; bracteae basi deltoideae, superne aciculares, subadpressae, ad medium scapum circiter 2.5 cm. longae. *Flores* geminati, in spicam laxiusculam digesti; pedicelli doliiformes brevissimi; bracteolae submembranaceae, obscurae. *Perigonii* lobi margine purpureo-rosei, ceterum viridescentes, ultra 12 mm. longi, fere 5 mm. lati; tubus circiter 12 mm. longus, inferne constrictus ibique circiter 2.5 mm. latus. *Stamina* parum arcuata, circiter 5 cm. longa, filamentis rubescentibus, antheris luteis basi retusis. *Ovarium* circiter 1–2 cm. longum, 5 mm. latum, obscure rubro-notatum; stylus vix 3 cm. longus. *Capsula*, vix matura, 6-loba lobis alternis majusculis minimisque, circiter 1.5 cm. longs, 8 mm. lata. *Semina* circiter 4 mm. longa, atra, polita vix tamen nitentia.—*A. Leopoldi*, Hort. ex Kew Hand-list Tend. Monocut. p. 115.—J. R. DRUMMOND.

The *Agave* which forms the subject of our plate is one which was presented to Kew in 1893 by the late Mr. W. B. Kellock from the valuable collection of succulent plants formed by him in his garden at Stamford Hill. Its history beyond this point is unfortunately obscure in the extreme. It was received at Kew as *A. Leopoldi*, Hort., and at the time of its presentation Mr. Kellock believed it to have originated as the result of crossing *A. filifera*, Salmdyck, with *A. princeps*, Hort.; it has found a place in the Kew Hand-list of Tender Monocots under the name attributed

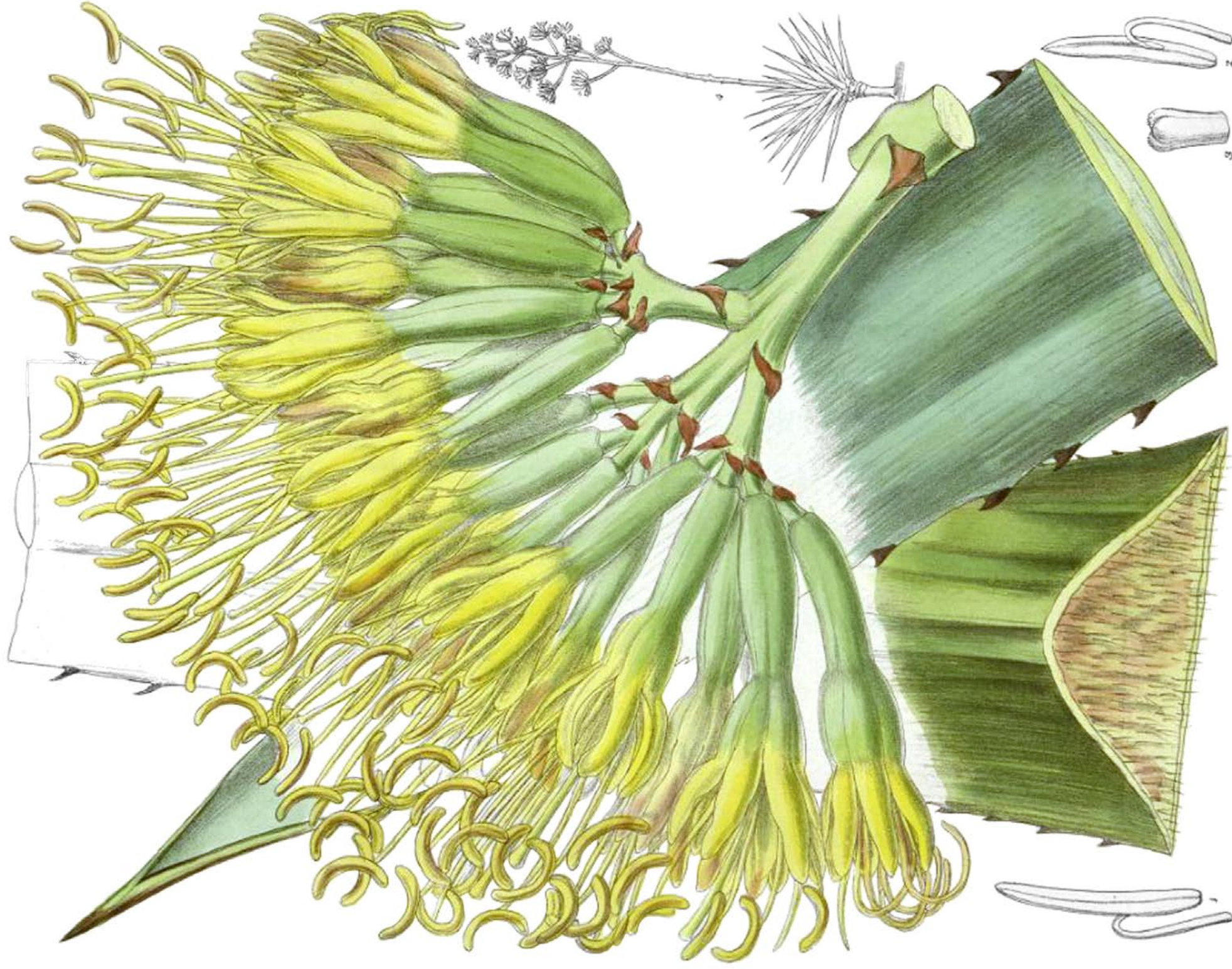
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to it by Mr. Kellock. It may, however, be pointed out here that this is not the only *Littaea* presented to Kew under the name *A. Leopoldi*; as a matter of fact this plant, the *A. Leopoldi* of the 'Hand-list,' was known in Mr. Kellock's collection as *A. Leopoldi* No. II., and the name has been provisionally restricted to the *Littaea* now figured because *A. Leopoldi* No. I. was found to agree with a plant already under cultivation under an older name. What the identity of '*A. princeps*,' suggested as one of the parents of our plant, may be it has been impossible to ascertain, but the matter is not now of material consequence, since it is found, now that the plant has flowered, that its characters negative the suggestion that it is a hybrid between any two of the *Littaeas* known to have been in cultivation in any part of Europe. On the contrary these characters clearly point to its being a perfectly valid species and, although as to this there is not the same certainty, its characters suggest that it is probably a native of Central America. Like *A. filifera*, *A. dissepata* produces suckers from the base of the stem, and like *A. filifera* has thriven well in the Succulent House at Kew under the conditions suitable for Agaves generally. Here it flowered, eighteen years after its presentation, in October 1911, and provided the material from which our figure has been drawn, and on which it has at last been possible to base a definite description.

DESCRIPTION.—*Succulent undershrub*, stem very short, clothed with a dense rosette of leaves. *Leaves* fibrous-coriaceous, the outermost spreading but not recurved, the central straight ascending, the innermost somewhat incurved, passing gradually into the bracts, linear-loriform, the upper portion very gradually narrowed, the base thin, then suddenly swollen into a pulvinus, which is square below, ovate-lanceolate above, contracted into a neck about 2 in. above the base, at the apex, which is rather blunt, armed with a spine which is under $\frac{1}{4}$ in. long, nearly 1 in. across at the base, about $\frac{1}{3}$ in. wide at the neck and $\frac{2}{3}$ in. wide higher up, the pulvinus about $\frac{1}{2}$ in. thick in the middle, slightly convex, smooth and bright green on both surfaces, but in the upper portion and especially beneath irregularly marked with whitish streaks, the margin almost papery ultimately shredding into thin curled threads. *Scape* about

5 $\frac{1}{2}$ ft. high, its peduncle about 2 $\frac{1}{2}$ ft. long, clothed with long subscarios bracts; bracts deltoid at the base, acicular above, somewhat adpressed to the scape, those in the middle about 1 in. long. *Flowers* scattered in a rather loose spike, geminate; pedicels rather thicker in the middle than at either extremity, very short; bracteoles almost membranous, obscure. *Perianth-lobes* greenish with rosy-purple edges, over $\frac{1}{2}$ in. long, about $\frac{1}{5}$ in. wide; tube about 4 in. long, narrowed below and there $\frac{1}{10}$ in. wide. *Stamens* slightly curved, about 2 in. long; filaments reddish; anthers yellow, retuse at the base. *Ovary* about $\frac{1}{2}$ in. long, $\frac{1}{5}$ in. wide, obscurely streaked with red; style about 1 $\frac{1}{4}$ in. long. *Capsule*, barely ripe, 6-lobed, the lobes alternately large and quite small, about $\frac{2}{3}$ in. long, $\frac{1}{3}$ in. wide. *Seeds* about $\frac{1}{6}$ in. long, black and polished but hardly shining.

Fig. 1, section of a leaf; 2 and 3, anthers; 4, stigma; 5, sketch of an entire plant:—*all enlarged except 5, which is much reduced.*



TAB. 8746.

AGAVE FOURCROYDES.

Yucatan.

AMARYLLIDACEAE. Tribe AGAVEAE.

AGAVE, *Linn.*; *Benth.*, et *Hook. f.* *Gen. Plant.* vol. iii. p. 733.

Agave (§ Euagave) **fourcroydes**, *Lem. in Ill. Hort.* vol. xi. Miscell. p. 65; *Trelease in Rep. Miss. Bot. Gard.* vol. xix. pp. 277–279, et in *Mem. Nat. Acad. Sci. Washington*, vol. xi. p. 48, t. 110–112; *Berger*, *Agaven*, p. 288, fig. 69, species e grege *Rigidarum-Sisalanarum*, ab omnibus affibus differt praesertim rosula caulescente foliorumque spina terminali robusta.

Frutex caulescens, caule robusto erecto 0·75–1·2 m. et ultra alto, 25 cm. diametro, rosula elongata plurifolia coronato basi stolonifero. *Folia* rigidissime erecto-patentia, coriaceo-carnosa, glauca, oblanceolato-ensiformia, circiter 1·4 m. et ultra longa, basin versus attenuata, supra medium 10–12 cm. lata, sensim acuminata, basi supra convexa, hinc planiuscula, superne canaliculata et marginibus erecta, subtus carinato-convexa; ad margines e basi usque 5–7 cm. infra spinam terminalem aculeata, spinae basales parvae saepe confluentes, reliquae majores 2·2–2·5 cm. inter se distantes e basi dilatata 5–6 mm. longa acumine anguste deltoideo re- vel incurvato 2–4 mm. longo atrobrunneae, margine inter spinas recto vel paullum sinuato; spina terminalis robusta, 3 cm. longa, conica, recurvula, basi supra paullum excavata, haud vel vix decurrente, atrobrunnea. *Inflorescentia* 6–7 m. alta; pedunculus erectus, robustus, bracteis vacuis numerosis triangularibus acutis adpressis mox exsiccantibus vestitus; panícula ampla, pedunculum fere aequans vel eo brevior, oblongo-pyramidalis, recta vel subcurvata, ramis circiter 15–20 patentibus apice repetite trichotome divisis et flores numerosos luteo-virides dense aggregatos ferentibus, post anthesin capsuligeris et abundanter bulbiferis. *Pedicelli* circiter 5 mm. longi, bracteis minutis late deltoideis acutis. *Perianthii* tubus obconio-campanulatus, 6-sulcatus, 15–17 mm. longus; segmenta sublinearia, obtusa, tubi longitudine vel paullum longius, luteo-viridia mox exsiccantia. *Filamenta* medio tubi affixa, luteo-viridia, 6·5 cm. longa; antherae luteae. *Ovarium* subtrigono-cylindraceum, utrinque angustatum, superne sub tubo constrictum, 3·5 cm. longum, 6-sulcatum, viride, pruinose; stylus demum fere 8 cm. longus, stigmate capitato. *Capsula* oblongo-clavata, subtrigona et 3-sulcata, circiter 5·5 cm. longa, basi stipitata, apice rostrata; semina atra, fere semi-orbicularia, 9–10 mm. longa.—*Agave ixtlioides*, *Lem. ex Jacobi in Hamb. Gartenzeit.* (1866), p. 214, Versuch. p. 287; non *Hook. A. rigida*, var. *longifolia*, *Engelm. in Trans. Acad. Sci. St. Louis*, vol. iii. p. 861; *Collected Works*, p. 312. *A. ixtli*, var. *elongata*, *Baker in Gard. Chron.* 1877, vol. viii. p. 397; *Ricasoli, Monogr. Agav.* p. 21; *Terrace. Primo Contributo*, p. 44. *A. rigida*, var. *elongata*, *Baker, Handb. Amaryll.* p. 181; *Kew Bulletin*, 1892, p. 33; *Braun in Pflanze*, vol. iv. p. 70. *A. elongata*, *Berger, Hort.*

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Mortol. 11, p. 859; non Jacobi. *A. rigida*, Hort. ex Berger in Gartenwelt, vol. ii. p. 604 cum figura, ex parte. *A. Ixtli*, Hort. *A. longifolia*, Hort.
—A. BERGER.

The *Agave* here figured from material supplied from a plant that poled in 1914 in the garden of Lady Hanbury at La Mortola, Ventimiglia, Italy, though a species that is neither new nor rare, fully deserves a place in this work on account of its great economic interest. It is the species which supplies from its leaves the fibre known as Henequen, a material which rivals in its qualities and value, and is perhaps at times confused with the now more familiar fibre known as Sisal. The Henequen plant is a native of Yucatan in which province of Mexico it is also largely cultivated. From thence it has now spread to most countries with a tropical or semitropical climate, and where it is not grown for the sake of its fibre it is used as an effective hedge-plant, or as a decorative subject in gardens. It is singular that nothing should be known with certainty as to when or by whom this species was first introduced to cultivation in Europe, and even its introduction as an economic species is obscure. It is difficult to believe that this species and its rival *A. sisalana* were unknown to Jacobi, yet there is no description by that author which agrees entirely with either plant. As regards *A. sisalana* the same is true of Lemaire, and it is only because Professor Trelease has been able to associate Lemaire's name *A. fourcroydes* with the species now figured that we believe Lemaire to have known the Henequen, for the original description of the plant leaves this doubtful. Until Trelease thus vindicated the name Lemaire had proposed, the nomenclature of the Henequen was somewhat confused; other authors, unwilling to establish a new species, have endeavoured to associate the Henequen with *A. rigida*, Mill., *A. elongata*, Jacobi, *A. candelabrum*, Todaro, and yet other species from which it differs very markedly. *A. fourcroydes* belongs to the subgenus *Euagave*, and within this its affinities are with the *Sisalanae*. group of the *Rigidae*, among which it is characterised by its narrow leaves and non-decurrent end-spine. Reproduction is singularly well provided for in this species. The

rosette throws out suckers; the panicle gives rise to great numbers of viviparous bulbils, and at the same time ripens capsules which contain an abundance of seeds.

DESCRIPTION.—*Shrub*, developing a stem 3–4 ft. high and 10 in. thick, emitting suckers at the base. *Leaves* numerous in a terminal rosette, rigidly erecto-patent, $4\frac{1}{2}$ ft. long, oblanceolate-ensiform, 4 in. or more wide above the middle, gradually narrowed towards the base, apex rather shortly acuminate, not very fleshy, glaucous and somewhat pruinose, smooth, convex on the upper surface near the base, then flat and channelled with upcurved margins, underneath convex and almost keeled; margins armed from the base to about 2–3 in. below the end-spine, basal prickles very small, often confluent, the others about $1-1\frac{1}{2}$ in. apart, blackish, with a broad horny base and a fine short point, 1–2 lin. long, the lower recurved, the others upcurved (sometimes the point twice bent), the margin between almost straight; end-spine stout, conic, $1\frac{1}{2}$ in. long, a little recurved, not decurrent, round, grooved below the middle, blackish-brown. *Inflorescence* about 18–21 ft. high, straight or slightly curved at the top; scape stout, green, with numerous adpressed triangular acute empty bracts; panicle oblong-pyramidal, rather loose, with about 15–20 branches, which are patent, tripartite at the top, with numerous flowers in dense clusters; pedicels very short; bracts minute, deltoid, soon withering. *Flowers* $2\frac{1}{2}$ –3 in. long. *Perianth* tube about $\frac{5}{8}$ in. long, 6-furrowed, broadly obconic-campanulate; segments about as long as or a little longer than the tube, linear, obtuse, yellowish-green, soon withering. *Filaments* inserted in the middle of the tube, $2-2\frac{1}{3}$ in. long; anthers 1 in. long, yellow. *Ovary* cylindric-clavate, somewhat triangular, green, pruinose, constricted at the top, $1\frac{3}{4}$ in. long; style 3 in. long; stigma clavate. *Capsule* oblong-clavate, obtusely triangular, 3-furrowed, with stipitate base and beaked apex, over 2 in. long. *Seeds* almost semiorbicular, $4\frac{1}{2}$ –5 lin. long, black. *Bulbils* very numerous.

TAB. 8746.—Figs. 1 and 2, anthers; 8, stigma; 4, sketch of an entire plant:—*all enlarged except 4, which is much reduced.*



TAB. 8317.

AGAVE FRANZOSINI.

Mexico or Central America.

AMARYLLIDACEAE. Tribe AGAVEAE.

AGAVE, *Linn.*; *Benth. et Hook .f. Gen. Plant.* vol. iii. p. 733.

Agave (Euagave) *Franzosini*, *Nissen in Hort. ex Ricasoli, Della Utilita dei Giardini d'Acclimazione* (1888), p. 7 (nomen); *Sewell in Gard. Chron.* 1889, vol. vi. p. 69; *W. Wats. in Kew Bull.* 1889, p. 301; *Bak. in Kew Bull.* 1892, p. 3, et in *Gard. Chron.* 1892, vol. xii. p. 179, fig. 31; *Berger in Gartenwelt*, 1898, vol. ii. p. 603, c. icon.; species ex affinitate *A. Verve Crucis*, *Mill.*, sed differt foliia numerosioribus majoribus glaucissimis asperimis, paniculaque magis elongata.

Acaulis, rosula maxima, stolonifera. *Folia* circiter 40, magna, erecta eleganter recurvata, 2·25 m. longa, oblanceolata, superne canaliculata, rigida sed parum carnosae, saepe ad margines undulata vel varie flexa, basin versus sensim attenuata et carnosiora, subtus valde convexa, supra medium 35–41 cm. lata, sensim acuminata et in spinam validam conicam 6–7 cm. longam atro-brunneam breviter decurrentem abeuntia, glaucissima, sub sole aestivo albidula vel caesia, utrinque asperima et basin versus zonis vel arcis viridibus laevibus irregulariter maculata, ad margines parum sinuatos aculeis magnis atro-brunneis remotiusculis deltoideo-uncinatis vel patulis 1–2 cm. longis armata. *Inflorescentia* maxima, 11·5 m. alta; scapus validus basi 27 cm. diametro, 2·75 m. longus, glaucus, bracteis vacuis inferioribus foliaceis superioribus deltoideis subulato-acuminatis munitus; panicula 8·75 m. longa, 2·9 m. lata, oblonga, ramis numerosis patentibus viridibus superne repetite trichotome divisis flores numerosos gerentibus; bractee parvae, deltoideae, reflexae; pedicelli 1–2 cm. longi. *Perianthii* segmenta basi in tubum ventricosum-infundibuliformem 22 mm. longum extra flavescentem continuata, superne libera, aurea, mox siccantia, 32 mm. longa; exteriora superne linearia, obtusa, planiuscula, interiora dorso carinata intus canaliculata. *Stamina* ad medium tubi affixa; filamenta flavescentia, robusta, 8 cm. longa; antherae sulfureae, 4 cm. longae. *Ovarium* 5 cm. longum, 3(–6)-gonum, laete et nitide viride, basin versus attenuatum, superne 13 mm. latum; stylus robustus trigonus, demum 12 cm. longus; stigma capitatum, obscure trilobum.—A. BERGER.

The *Agave* which forms the subject of our illustration, which Mr. J. G. Baker terms “the prince of the Agaves,” is certainly one of the noblest members of the genus. Its very distinctive whitish or bluish colour which shows to much advantage in strong sunlight, the vigour of its growth and the grace of its habit combine to render it a striking and delightful object. It is not certainly known whether its original home be Central America or Mexico, but it almost certainly came from one or other of these

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areas, and Mr. Vincenzo Ricasoli, in the place quoted above, gives Mexico as its home. It appears to have been introduced to Italy in the first instance by Mr. Francesco Franzosini, in whose fine garden at Intra on Lago Maggiore there were plants prior to 1878, the year in which it was added by the late Sir T. Hanbury to his collection at La Mortola, where it flowered for the first time in 1889. Since then it has flowered repeatedly there, has always produced abundant seed, and has been widely distributed. It was first added to the collection of Agaves at Kew in 1890, when Sir T. Hanbury sent seeds to this establishment, which in 1892 was further indebted to the same generous correspondent for a living plant.

The plant from which the material employed in preparing our plate was obtained was a magnificent specimen in the garden at La Mortola, whose age was not much over 15 years. At the end of April it showed no sign of flowering, but in the middle of May the enormous peduncle began to appear, and, growing with great rapidity, reached its full size in about six weeks; the first flowers began to open on the lowest branches on July 21st, and a fortnight later the material for our plate was available.

A. Franzosini is easily propagated by suckers which soon grow into sturdy plants under the treatment suitable for *A. Vera Cruz*, and appears to be as hardy as that species. At La Mortola it seems to prefer the hottest situations; it requires as much light as possible, and should not be kept at all damp, otherwise it is apt to become less glaucous and to lose much of its distinctive beauty. At Kew *A. Franzosini* thrives well under the treatment suitable to its nearest allies.

DESCRIPTION.—*Stem* 0; rosette very large, in full-grown examples 15 ft. wide and 10–11 ft. high, with about 40 somewhat recurved and gracefully bent, whitish or bluish-white leaves and many suckers. Leaves about 7½ ft. long, 5–6 in. thick at the base, convex on both sides, but especially beneath, and there narrowed, 6½ in. wide, thence gradually becoming wider and thinner upwards, oblanceolate and 14–16 in. across when flattened out, but generally broadly and deeply channelled while still young and erect, the margins at times wavy, the apex ending in a strong conical

subulate blackish-brown end-spine $2\frac{1}{4}$ –3 in. long, decurrent on the margins for 4–8 in.; the margins lower down bordered with spines and slightly or hardly repand between the spines; those lowest down rather small and close set, 3 lin. long and 8 lin. apart, deltoid uncinat, the next above larger, and $\frac{3}{4}$ –1 in. apart; the upper spines about the middle of the leaf 2 in. apart, and sometimes with one or two smaller ones between them, deltoid-uncinate, recurved or spreading from a wide fleshy base, above the middle still larger, about $\frac{3}{4}$ in. long, and from a more repand margin; those near the tip standing as far apart, but again smaller; all blackish brown; upper leaves in a flowering rosette shorter and narrower, the highest linear-lanceolate with a straight margin and sometimes with a continuous horny border; both surfaces rough and whitish, but irregularly marked with small green patches or stripes, especially underneath. *Inflorescence* almost 40 ft. high; scape stout, about 9 ft. long and 11 in. thick, with several empty bracts, the lowest leafy, the upper scaly, triangular with a subulate tip; panicle oblong or cylindric-ovate, about 10 ft. across; branches spreading, the lowest shortest, with small deltoid basal bracts, 2–3 times 3-furcate upwards, many-flowered; pedicels 5–10 lin. long; bracts very small, deltoid; flowers over 4 in. (including the style over 7 in.) long. *Perianth-segments* united below in a globose or wide funnel-shaped tube; above free, linear, obtuse, soon withering, brightish yellow; the outer flat, $1\frac{1}{2}$ in. long, the inner narrower, keeled without and channelled within. *Stamens* attached near the middle of the tube; filaments stout, yellowish, 3 in. long; anthers sulphur yellow, $1\frac{1}{2}$ in. long. *Ovary* somewhat clavate, 3(–6)-angled, smooth, bright green, 2 in. long, narrowed at the apex; style very stout, $4\frac{1}{2}$ in. long; stigma thickened, obscurely 3-lobed.

Figs. 1 and 2, anthers; 3, stigma; 4, whole plant, showing habit:—1–3 enlarged, 4 much reduced.



AGAVE GLAUDESCENS.

Glaucescens Agave.

Nat. Ord. AMARYLLIDÆÆ.—HEXANDRIA MONOGYNIA.

Gen. Char. *Perigonium* corollinum, superum, infundibuliforme, persistens, limbi sexpartiti laciniis submæqualibus. *Stamina* 6, tubo perigonii inserta; *filamenta* filiformia, æstivatione inflexa, sub anthesi exserta; antheræ lineares, versatiles. *Ovarium* inferium, triloculare. *Ovala* plurima, in loculorum angulo centrali biseriata, horizontalia, anatropa. *Stylus* filiformis, exsertus, cavus, apice pervius; *stigma* capitato-trigonum. *Capsula* coriacea, trigono-triquetra, trilocularis, loculicide trivalvis. *Semina* plurima, plano-compressa; *testa* chartacea, marginata; *raphe* laterali, umbilicum prope basin lateralem chalazæ sub-apicali jungente. *Embryo* cylindricus, axilis, albuminis carnosius longitudine, extremitate radiculari umbilicum spectante.—Herbæ *acaules* v. *caulescentes*, *interdum giganteæ*, *longævæ*, *vel semel florentis*, in *America tropica et subtropica cis æquatorem indigenæ*, *quædam nunc a mortalibus late diffusæ*; foliis radicalibus carnosius, *interdum maximis*, *marginibus spinosis*; floribus in *scapo radicali bracteato paniculatis numerosissimis*. *Endl.*

AGAVE *glaucescens*; caule elongato crasso, foliis crassissimis 2–3-pedalibus glaucis spathulato-lanceolatis marginatis integerrimis apice longe spinescentibus supra concaviusculis subtus valde convexis, scapo bipedali copiose subulato-bracteato, spica caudiformi crasso densifloro cernuo scapo quadruplo longiore demum copiose viviparo, floribus in bracteis subulatis aggregatis pedicellatis, pedicellis brevibus basi bracteolatis, ovario cylindræo, tubo brevi contracto, limbi laciniis linearibus, staminum filamentis longitudine perianthii, stylo longiore.

AGAVE *glaucescens*. *Hort. Kew.*

Of the fine and in many species stately genus *Agave*, no less than sixty-four species are enumerated and attempted to be characterized in Professor Koch's 'Wochenschrift des Vereines zur Beforderung des Gartenbaues in den kiniglich Preussischen Staaten,' etc., for 1860, chiefly from garden plants, and too often plants whose flowers are unknown. We do not find among them one which accords with our present individual, which has been cultivated in the Succulent House at Kew, where it was
SEPTEMBER 1ST, 1862.

received from Galeotti many years ago as a native of Mexico, under the name we have here adopted. It flowered in the autumn of 1861 for the first time, and was a very attractive object during the whole winter, for the expansion of the innumerable flowers on the long and singularly decurved spike was very gradual, and now that we are describing it (August, 1862) the spike still remains with a few imperfect capsules, and an immense quantity of young plants germinating on the rachis. The leaves are withering, and the foliage and most of the stem will probably die; but suckers are produced from the base of the stem, and there is altogether a most abundant crop of young plants.

DESCR. *Stem* three to four feet high, and twelve inches in circumference, cicatrized with the transverse scars arising from the fallen leaves. *Leaves* two to three feet long, forming a noble crown to the stem, very thick and fleshy, and singularly glaucous, spathulato-lanceolate, quite entire, and with a narrow cartilaginous margin, terminated by a long and very pungent and subulate *spine*. *Scape* eight feet long, cylindrical, erect or nearly so, beset with large subulate *bracts*, and terminating in a dense; caudate, remarkably deflexed *spike*, nearly as thick as one's arm, of really innumerable, most firmly compacted, and imbricated flower-buds. The lowest buds are the first to diverge from the rachis, and to expand; and then the spike becomes *hérissé* with the multitude of stamens and styles, and eventually with a large crop of young plants, for it is abundantly proliferous, especially towards the apex. *Bracteoles* about three inches long, subulate, including two to four shortly pedicelled, green flowers, each about an inch and a half long. *Ovary* inferior, oblong, broader than the short free portion of the cylindrical *tube*; *limb* of six rather long, linear, obtuse, channelled, spreading *segments*. *Stamens* as long as the flowers, or even longer. *Anthers* long, linear. *Style* often as long as the filaments of the stamens.

Fig. 1. Very reduced flowering plant. 2. Portion of the rachis of the spike, with flowers:—*natural size*. 3. Bract, bracteoles, and flowers:—*slightly magnified*. 4. Apex of a leaf:—*natural size*.

TAB. 7527.
AGAVE HASELOFFII.
Native of Mexiro,

Nat. Ord. AMARYLLIDÆ.—Tribe AGAVEÆ.

Genus AGAVE, Linn.; (*Benth. et Hook. f. Gen. Plant.* vol. iii. p. 738.)

- AGAVE (Littæa) *Haseloffii*; acaulis, foliis 30–40 dense rosulatis lanceolatis viridibus subcarnosis ad basin vix angustatis spinâ terminali haud pungente aculeis marginalibus parvis crebris deltoideis apice corneis nigris, pedunculo valido arcuato bracteis multis adpressis prædito, floribus geminis sessilibus, in spicam densam dispositis, bracteis propriis magnis scariosis linearibus basi deltoideis, ovario oblongo, perianthii tubo brevi campanulato, lobis oblongis brunneo-viridibus, staminibus lobis 4–5-plo. longioribus, antheris linearibus parvis, stylo demum antheras superante.
- A. Haseloffii, *Jacobi Monogr. Agav.* (1864) p. 244; in *Hamb. Gartenzeit.* vol. xxii. (1866) p. 220. *Baker in Gard. Chron.* 1877, p. 683; *Handb. Amaryllid.* p. 189.
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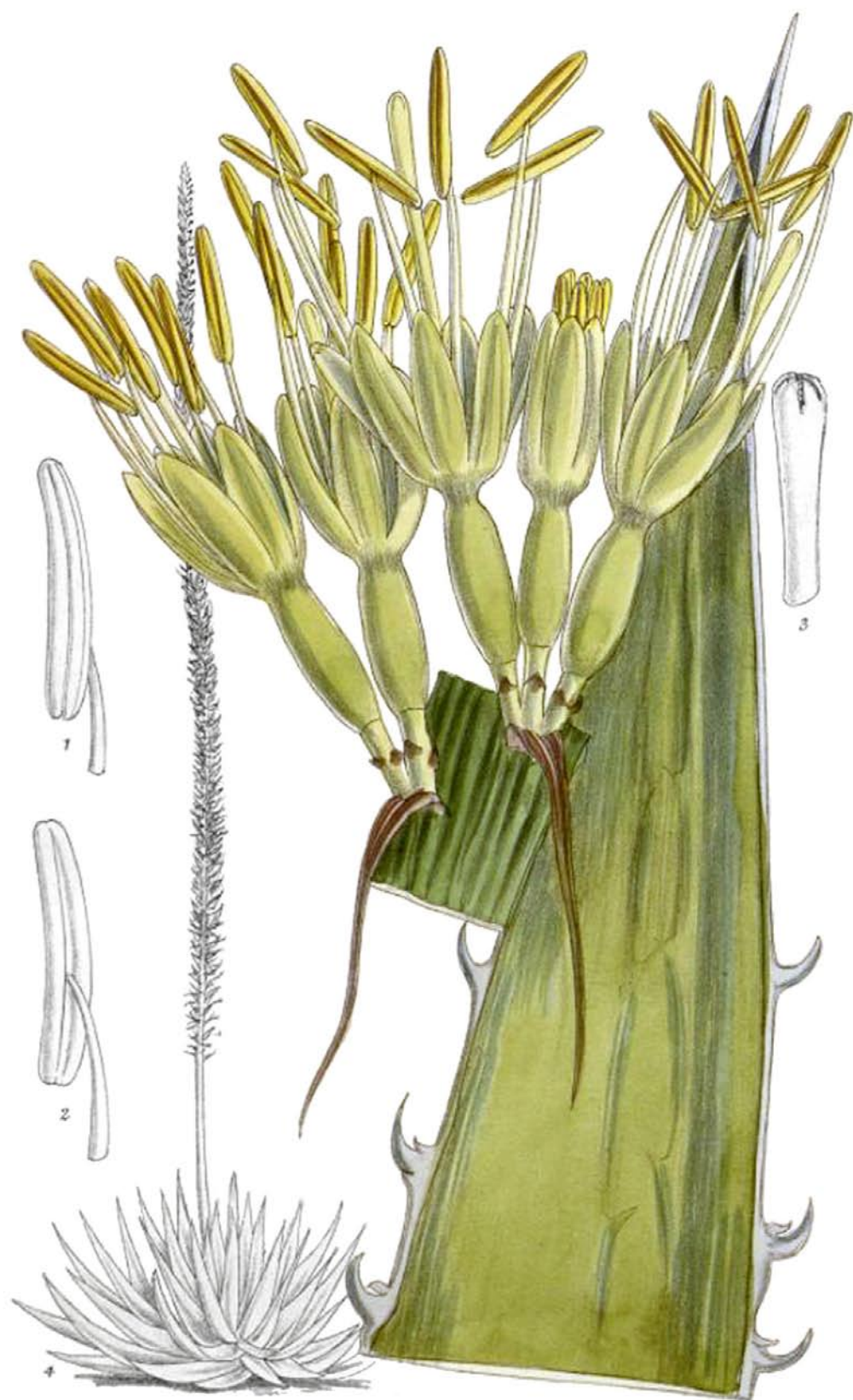
This Agave belongs to the section *Aloideæ*, in which the leaves are more fleshy, and not rigid in texture as in the better known *Americanæ* and *Rigidæ* and the marginal prickles always numerous and minute. The species of this group are comparatively rare in cultivation. The present plant has been grown at Kew for many years, but flowered for the first time in the summer of 1895. The species was originally described by Jacobi in 1864, and was named by him after the gentleman in whose garden he saw it.

Descr.—*Leaves* thirty to forty, in a dense sessile rosette, lanceolate, rather soft, and not very thick in texture, a foot and a half or two feet long, three inches broad at the middle, very little narrowed towards the base, pale bright green, the end spine not horny nor pungent, the marginal prickles very close and small, tipped with black. *Peduncle* arising from the base of the rosette of the leaves, stout, arcuate, three feet long, with numerous ascending bract leaves, the upper scarioses and long-pointed. *Flowers* in sessile pairs, forming a dense spike, which is five or six inches in diameter when they are fully expanded; bracts

APRIL 1ST, 1897

large, scariose, linear from a dilated base. *Ovary* green, oblong, an inch long. *Perianth-tube* very short, campanulate; lobes of the limb oblong, greenish-brown, half an inch long. *Stamens* above two inches long, inserted at the throat of the perianth-tube; anthers linear, small. *Style* finally overtopping the stamens.—*J. G. Baker.*

Fig. 1, Edge of leaf; 2, complete flower, cut open; 3, front view of anther; 4, back view of anther; 5, apex of style, *all more or less enlarged*; 6, whole plant *much reduced*.



M. S. del. J. N. F. lith.

Warrant Brooks, Day & Son Lith.

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TAB. 8481.

AGAVE HAYNALDII.

Mexico or Central America.

AMARYLLIDACEA. Tribe AGAVEAE.

AGAVE, Linn.; *Benth. et Hook. f. Gen. Plant.* vol. iii. p. 733.

Agave (§ Littaea) **Haynaldii**, *Tod. Hort. Bot. Pan.* vol. i. p. 88, t. 21; *Terracc. f. Pr. Contr. Monogr. Agav.* p. 25; *Baker, Handb. Amaryll.* p. 170; species ex affinitate *A. expatriatae*, Rose, sed differt foliis numerosioribus longioribus et inflorescentia altissima.

Frutex acaulis; rosula circiter 80-folia, 1–2 m. alta, 2 m. lata. *Folia* erecto patentia vel levissime incurvula, 9–11 dm. longa, lanceolato-ensiformia, longe acuminata et in spinam terminalem fere 3 cm. longam supra late canaliculatam subtriquetram exeuntia, supra medium 9–11 cm. lata, basin versus valde angustata cervice longo 5·5 cm. lato carnosio utrinque valde convexo et basi circiter 5 cm. crassa, medium versus planiuscula, superne subcanaliculata, tenuius coriaceo-carnosa, subtus convexa, utrinque obscure viridia nitida laevis, subtus sine lineis obscurioribus supra juvenilia tantum vitta pallidiore notata, margine angusto corneo primum castaneo dein cinereo aculeato continuo vel folii medio plerumque interrupto cincta, aculeis majusculis e basi latiore deltoideo-uncinatis saepe minoribus interjectis vel cum majoribus aggregatis, 5–9 mm. longis, basalibus minoribus crebrioribusque, summis remotioribus et sub apice folii tractu brevi deficientibus. *Inflorescentia* elata, valida, circiter 7·5 m. alta; pedunculus 1·5 m. longus, 8 cm. diametro, viridis levissime pruinosis, bracteis vacuis e basi 4–4·5 cm. lata abrupte angustatis convolutis reflexis apice pungentibus, inferioribus 30 cm. longis subremote vestitus; spica cylindrica longissima basi laxior superne densissima, alabastris glauco-viridibus, floribus expansis viridi-luteis; bracteae filiformes reflexae, 20 mm. longae; flores plerumque 2-ni vel 3-ni, rarissime 4–8-ni, pedicellis 5–6 mm. longis crassis suffulti. *Perianthii* segmenta 19–22 mm. longa, carnosula, oblonga, obtusa, exteriora dorso crasse carinata, basi in tubum brevissimum extra 9–10 mm. latum 6-sulcatum connata, mox evanescentia et stamina amplectentia. *Filamenta* 5–5·3 cm. longa, pallide viridi-lutea, gracilia, antheris luteis 20–22 mm. longis. *Ovarium* subcylindraceum, 2–2·5 cm. longum, basi 7–8 mm. crassum, superne constrictum, pallide viride glauco-pruinosis; stylus demum 5·5 cm. longus, filamentis robustior; stigma paullo incrassatum, subtrilobum.—A. BERGER.

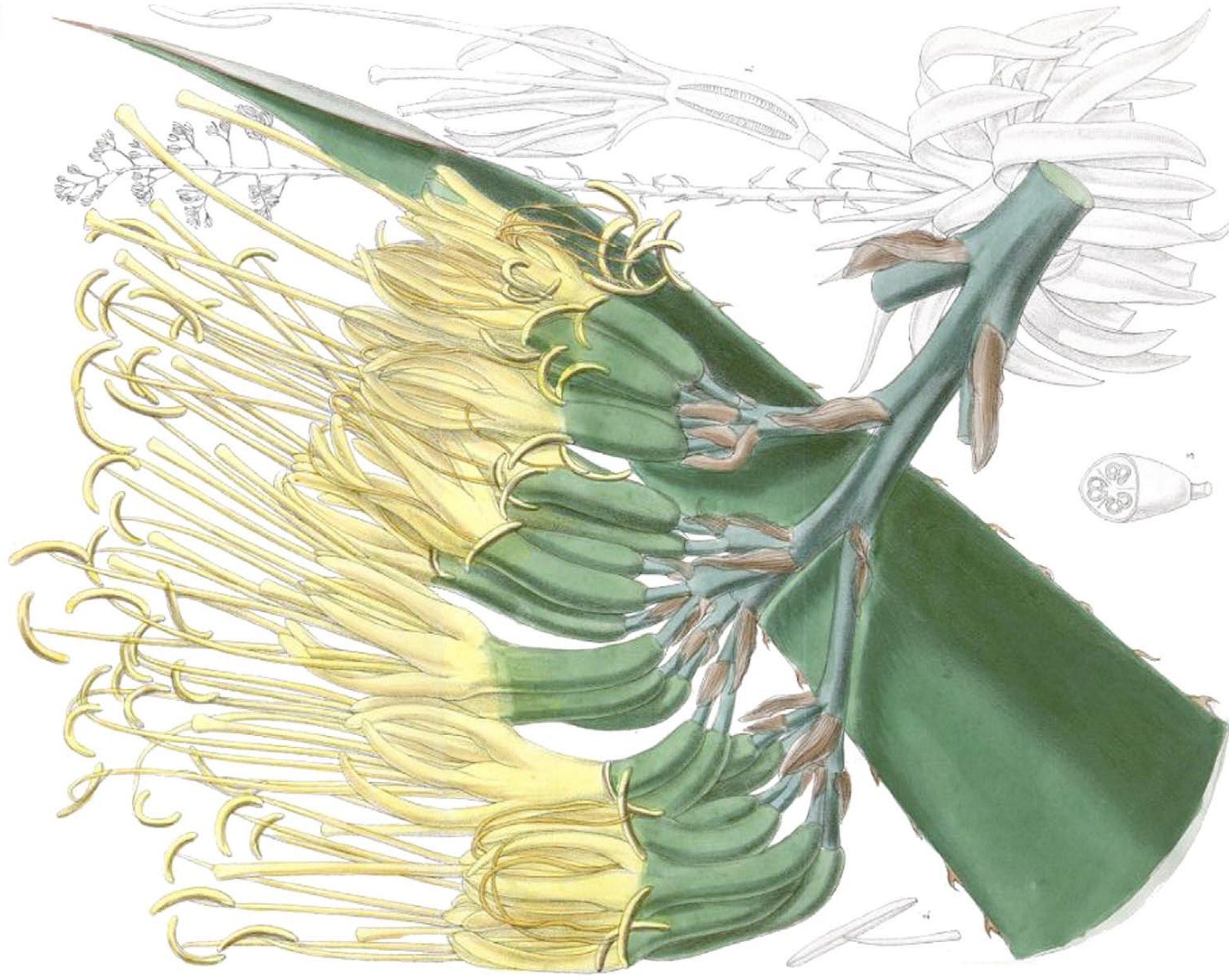
The *Agave* which the late Professor Todaro named *A. Haynaldii*, in honour of the distinguished botanist Archbishop Haynald, is one that flowered in 1878 in the garden of Mr. Whitacker at Ai Colli near Palermo, and was probably originally obtained from some collection in England. The plant from which our illustration has been prepared is one sent by Dr. H. Ross from the Palermo Botanic Garden in May 1897 to that of the late Sir T. Hanbury at La
FEBRUARY, 1918.

Mortola. It may therefore be accepted as an authentic example of *A. Haynaldii*, though it is found on comparing the La Mortola plant with the description and figure supplied by Todaro that there is some degree of variability in the size, disposition and direction of the lateral spines and in the dimensions and arrangement of the flowers. The horny leaf-border is less continuous and is generally interrupted in the middle in the La Mortola example; its flowers, too, are somewhat smaller and are generally disposed in twos or threes, less often in fours; there are never, as in the original Palermo plant, as many as eight in one cluster. The species to which *A. Haynaldii* bears the greatest resemblance is that described in 1900 as *A. expatriata* by Dr. Rose; a comparison of the figures and descriptions of the two plants shows that they are very, perhaps too closely related. A member of the 'Marginatae' group of Littaeas, easily recognised by the horny border of the leaves and by the short perianth-tube with lobes which embrace the stamens as soon as the anthers are ripe, *A. Haynaldii* is readily distinguished from the others by its larger size. The La Mortola example here figured showed signs of flowering towards the end of September 1910, the spike pushing with considerable rapidity and the first flowers opening in November; the apical flowers opened in February 1911.

DESCRIPTION.—*Shrub*, stemless; rosette with about 80 leaves, some 6 ft. wide, 4 ft. high. *Leaves* erecto-patent or slightly incurved, $3\frac{1}{4}$ – $3\frac{1}{2}$ ft. long, 2 in. thick and very bi-convex at the base, narrowed and flat towards the middle and somewhat channelled below the point, lanceolate-ensiform, about $3\frac{1}{2}$ – $4\frac{1}{2}$ in. wide above the middle, thence tapering gradually into a long point with a wide-channelled, nearly 3-quetrous, brown end-spine, about 1 in. long, constricted towards the base into a long neck, $2\frac{1}{8}$ in. wide, convex underneath but gradually thinner towards the point, coriaceous, dark glossy green, without darker lines on the back and only in young plants with a pale band on the upper surface; the margin with a spiny horny border, usually interrupted about the middle of the leaf, when young chestnut brown, soon becoming ash-grey, slightly repand between the spines, the lowest small and close, those of the

middle of the leaf $2\frac{1}{2}$ – $4\frac{1}{2}$ lin. long, deltoid-uncinate from a broader base, generally with an intercalated smaller, occasionally 1–2 or more aggregated with a larger, the upper spines more distant and smaller, the leaf-point for about 2–3 in. unarmed. *Inflorescence* a cylindric spike 22–23 ft. high; peduncle stout, $4\frac{1}{2}$ ft. high over 3 in. thick, with many reflexed subulate convolute scarious empty bracts, 8–13 in. long; flowers generally 2–3 together, rarely 4 or 8, greenish-yellow, the buds and all other parts of the inflorescence pruinose; bracts filiform, reflexed, pedicels very short, thick. *Perianth-segments* oblong, obtuse, fleshy, pale yellowish-green, $\frac{3}{4}$ –1 in. long, soon withering and embracing the stamens, the outer 3 with a thickened dorsal rib, connate below in a very short 6-furrowed tube, $\frac{2}{5}$ in. wide. *Stamens* inserted at the mouth of the tube; filaments erect, 2 in. long or longer; anthers yellow, under 1 in. long. *Ovary* cylindric, $\frac{3}{4}$ –1 in. long, 3 – $3\frac{1}{2}$ lin. wide, narrowed into a short beak under the perianth-tube; style rather longer and stouter than the stamens; stigma slightly capitate, obscurely 3-lobed.

Fig. 1 and 2, anthers; 3, stigma; 4, sketch of an entire plant:—*all enlarged except 4, which is much reduced.*



TAB. 6589.

AGAVE HOOKERI.

Native of Mexico.

Nat. Ord. AMARYLLIDACEÆ.—Tribe AGAVEÆ.

Genus AGAVE, *Linn.*; (*Kunth Enum.* vol. v. p. 818.)

AGAVE (Euagave) *Hookeri*; acaulis, foliis 30–40 dense rosulatis lanceolatis coriaceo-carnosis 4–5-petalibus viridibus (junioribus solum leviter glauco tinctis) e medio 6–8 poll. lato ad spinam validam terminalem secus margines breviter decurrentem sensim angustatis, aculeis marginalibus corneis brunneis deltoideo-cuspidatis modice validis, pedunculo crasso 30-pedali, floribus in paniculam rhomboideam ramis dense corymbosis dispositis, pedicellis semipollicaribus, bracteolis scariosis lanceolatis, ovario cylindrico-trigono sesquipollicari, perianthii tubo brevissimo, segmentis lanceolatis luteis ovario æquilongis, filamentis limbo duplo longioribus, antheris magnis linearibus, stylo demum staminibus æquilongo.

A. *Hookeri*, *Jacobi in Hamburg Gartenzeit.* vol. xxii. p. 168; *Monogr.* p. 219; *Baker in Gard. Chron.* 1877, vol. ii. p. 718.

A. *Fenzliana*, *Jacobi in Hamburg Gartenzeit.* vol. xxii. p. 170.

A. inæquidens, *K. Koch in Wochenschrift*, 1860, p. 28 ?

This is one of the giant Agaves of the *Americana* group, which flowered for the first time, so far as botanical records extend, at Kew last year, and our drawing is made from a specimen which, for the six winter months, was one of the principal attractions of the Palm House. When the veteran monographer of the genus *Agave*, Lieutenant-General von Jacobi, visited Kew about the year 1865, he found in our collection three new species, which he named *Hookeri*, *Thomsoniana*, and *Smithiana*. The original type of *Hookeri*, from which his diagnosis and description, which were published in the “Hamburg Gartenzeitung” in 1866, were drawn up, we still possess, but it has never flowered. The present specimen belonged to Mr. Wilson Saunders, and differs a little from the type by its smaller and more distant prickles. I feel satisfied that Jacobi’s *Agave Fenzliana* is the same species, and think they will most likely both prove

NOVEMBER 1ST, 1881.

to be conspecific with the *A. inæquidens* of Dr. Karl Koch, described from flowerless specimens in the Berlin Botanic Garden in 1860.

DESCR. Acaulescent. *Leaves* thirty or forty in a rosette, lanceolate, firm in texture for the genus, four or five feet long, six to nine inches broad at the middle, green with only a slight glaucous tinge in a young stage, narrowed gradually to a pungent brown end-spine above an inch long, which is decurrent along the edges as a narrow entire brown horny line, for four or six inches, a quarter of an inch thick in the middle, three or four inches thick at the base, the marginal prickles deltoid-cuspidate, dark brown, an eighth or a six of an inch long. *Inflorescence* thirty feet long, the peduncle four or five inches thick at the base, furnished with numerous lanceolate squarrose bract-leaves. *Panicle* rhomboid, four or five feet long by a couple of feet in diameter; flowers arranged in dense corymbs at the end of the spreading or ascending branches; pedicels reaching half an inch in length; bracteoles lanceolate, scariose. *Ovary* cylindrical-trigonous, green, an inch and a half long; perianth-tube very short; segments lanceolate, pale yellow, as long as the ovary. *Filaments* twice as long as the perianth-segments; anthers linear, under an inch long. *Style* not developed till after the anthers, finally as long as the filaments.—*J. G. Baker.*

Fig. 1, Flower, *natural size*; 2, anther, *enlarged*; 3, vertical section of developed ovary, *natural size*.



H.T.D. del., J.N. Fitch

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TAB. 6511.

AGAVE HORRIDA.

Native of Mexico.

Nat. Ord. AMARYLLIDACEÆ.—Sub-order AGAVEÆ.

Genus AGAVE, *Linn.*; (*Kunth Enum.* vol. v. p. 818.)

AGAVE (*Littæa*) *horrida*; acaulis, foliis 30–40 dense rosulatis ensiformibus sub-petalibus apice spina pungente corneo magna armatis margine lato corneo griseo cinctis aculeis magnis distantibus inæqualibus armato, pedunculo foliis 3–4-plo superante, bracteis vacuis subulatis squarrosis, floribus in paniculam subspicatam densam cylindricam aggregatis geminis breviter pedunculatis et pedicellatis, bracteis parvis linearibus, ovario cylindrico-trigono, tubo brevi late infundibulari, segmentis oblongis purpureo-viridibus, staminibus ad tubi faucem insertis segmentis 2–3-plo longioribus, stylo demum filamentis æquilongo.

A. horrida, *Lemaire*; *Jacobi Monog.* pp. 43 and 207; *Nachtrage*, p. 15; *K. Koch in Wochenschrift*, vol. xii. p. 177; *Baker in Gard. Chron.* n. s. vol. vii. (1877), p. 621, fig. 99.

A. Regeliana and *Desmetiana*, *Hort. non Jacobi*.

This is one of the best known of the smaller Agaves with a distinct continuous horny border to the leaf. It was introduced from Mexico by Verschaffelt in 1862, and is now to be found in all the more complete collections, but usually under the name either of *Regeliana* or *Desmetiana*, both of which rightfully belong to species of another section. I am not aware that there is any record of its having flowered. Our drawing was made from a plant in the collection so liberally lent to Kew by J. T. Peacock, Esq., of Hammersmith, which has been on exhibition for a considerable time in the south wing of the Temperate House, where it flowered in the spring of this present year. The flowers are notably proterandrous, the style not reaching its full length, nor the stigma becoming papillose, till long after the anthers of the same flower are withered. I believe that *A. triangularis*, *grandidentata*, and *Maigretiana* of Jacobi, and *A. Gilbeyi* of Haage and Schmidt, will all prove to be forms of this species.

AUGUST 1ST, 1880.

DESCR. Acaulescent. *Leaves* thirty or forty in a dense rosette, ensiform, about a foot long, two inches broad, rigid in texture, flat and bright green on the face, duller green on the back, the point armed with a large pungent spine, the edges margined with a continuous distinct persistent grey horny border, which is furnished with numerous irregular large falcate brown horny prickles. *Peduncle* three or four times as long as the leaves, furnished with abundant subulate squarrose empty bracts. *Spike* cylindrical, about as long as the peduncle, seven or eight inches in diameter when the flowers are fully expanded; flowers arranged in pairs, each flower with a distinct pedicel, and each pair with a short peduncle and small linear bract. *Ovary* green, cylindrical-trigonous, under an inch long; tube funnel-shaped, a quarter of an inch long; segments oblong, green tinged with claret-purple, as long as the ovary. *Stamens* inserted at the throat of the perianth-tube; filaments claret-purple, two inches long; anthers linear-oblong, half an inch long. *Style* finally as long as the filaments, but not till after the anthers have withered.—*J. G. Baker.*

Fig. 1, View of plant—*much reduced*; 2 and 3, portions of leaves; 3, flowers; 4, section of flower:—*all of the natural size.*



W. Fitch, del et lith

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TAB. 5893.

AGAVE IXTLIOIDES.

Native of Mexico ?

Nat. Ord. AMARYLLIDÆ.—Tribe AGAVÆ.

Genus AGAVE, *Linn.*; (*Endl. Gen. Plant.*, p. 181).

AGAVE *ixtlioides*; acaulis, foliis ad 30 $1\frac{1}{2}$ –2 ped. longis medio $2\frac{1}{2}$ – $3\frac{1}{2}$ poll. basi $\frac{1}{2}$ poll. latis lineari-lanceolatis in apicem pungentem brunneam sensim attenuatis immarginatis, infra medium planis supra medium concavis, junioribus intense glaucis, spinis parvis $\frac{1}{6}$ – $\frac{1}{3}$ poll. distantibus falcatis adscendentibus brunneis, scapo 8–10-pedali, bracteis laxis erectis, panicule ramis 8–10 patentibus, floribus laxe corymbosis, perianthii tubo 1 poll. longo viridi segmentis lineari-oblongis obtusis flavo-viridibus subæquilongis, filamentis robustis, antheris magnis linearibus stramineis, stylo robusto staminibus multo brevioribus, stigmate subdilatato obtuso.

AGAVE *ixtlioides*, *Ch. Lemaire in Hamburg Garten und Blumenzeit.* vol. xxii. p. 214 (1866).

AGAVE *fourcroydes*; *Lemaire, l'Illust. Hortic.* vol. xi. p. 65 (1864) *non Jacobi*.

Of all cultivated plants none are more difficult to name accurately than the species of *Agave*, partly because of the imperfection of the published descriptions, and more from the impossibility of fixing their characters by words. The species before us is one that has long been in cultivation at Kew, but never flowered till January of the present year, when it threw up a scape twelve feet high. It agrees with the meagre character of the foliage (all that is described) of *A. ixtlioides*, itself a species of confused synonymy, and hardly distinguished by words from *A. fourcroydes* Jacobi; as which, according to Major-General Jacobi, it was first described by Lemaire. In other words, according to Jacobi, who is the great authority on this genus, this plant was first described by Lemaire as *A. fourcroydes* (*L'ill. Hortic.*, xi. 65), a name for which Jacobi

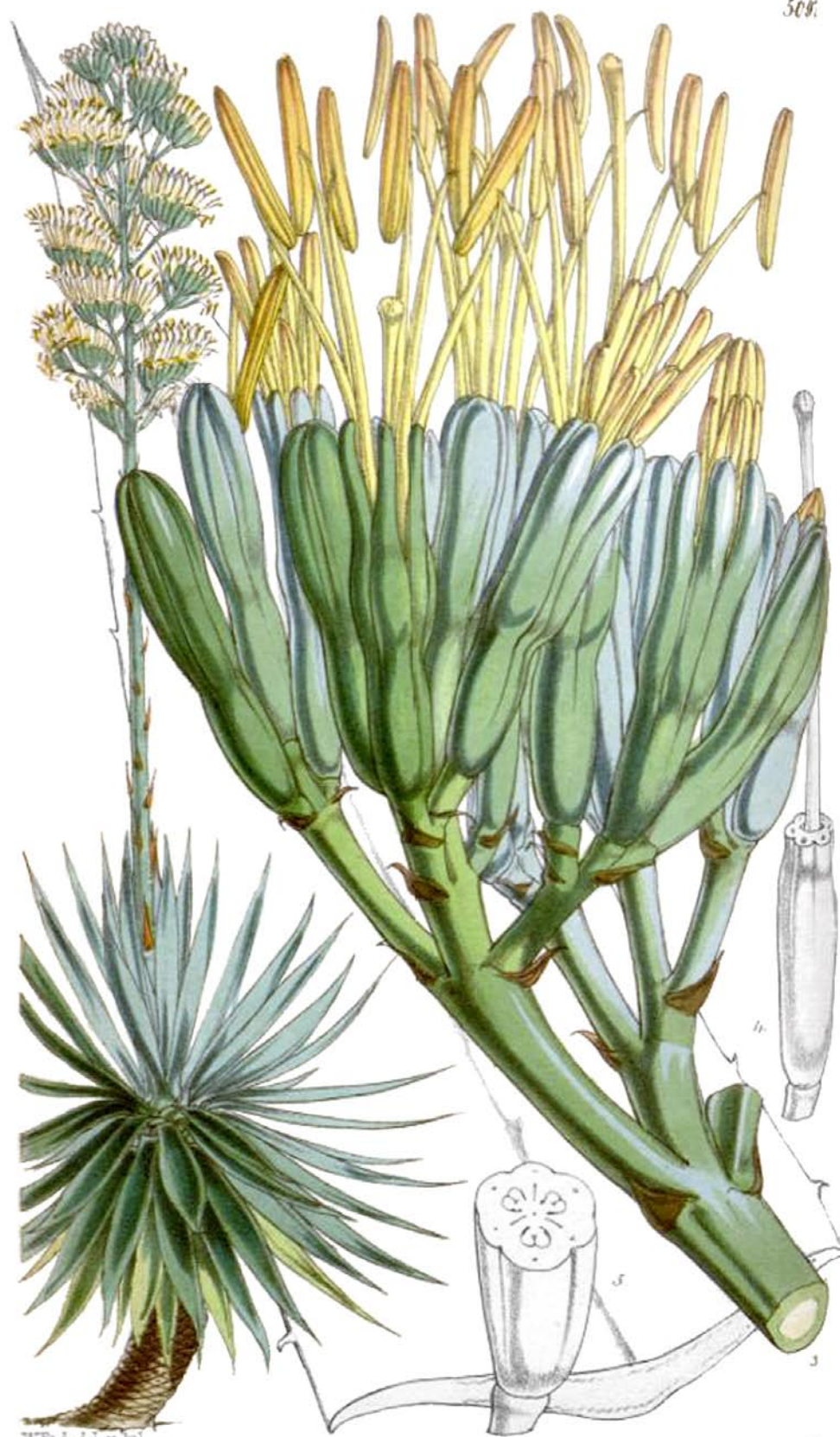
MARCH 1ST, 1871.

subsequently substituted that of *ixtlioides* (Hamburg Gar-

tenflor., xxii. 214), with the sanction of Lemaire, under whose authority it stands, stating at the same time as his reason for this, that it differs from his *fourcroydes*. The true *fourcroydes* of Jacobi is described by himself (Hamburg Gartenflor., xxi. 167); and to it is referred as a synonym *A. ixtly*, C. Koch, not *A. ixtly* of Haworth; and in Jacobi's general enumeration of *Agaves* (Regel Gartenflor., xvii. 348) *A. ixtlioides* and *fourcroydes* stand next one another in one section, whilst *A. ixtly* is placed in another; but judging from the descriptions all three may well belong to one species.

DESCR. *Stem* very short; constricted above the root. *Leaves* thirty to forty, forming a spreading rosette one to two feet across, dull green, very glaucous when young, eighteen to twenty inches long, two and a half to three and a half inches broad in the middle, thence narrowed upwards to a hard brown point, and downwards to a contracted base one and a half inches in diameter; upper surface of the upper half concave, of the lower half flat; spines small, brown, curved upwards. *Scape* ten to twelve feet high, slender, strict, sparingly covered with great bracts. *Panicle* two feet long, with about ten spreading branches a span long, each bearing towards its extremity a corymb of pale yellow-green sessile flowers; bracts at the base of the branch broadly ovate, acute, brown, one inch long; bracteoles much smaller and broader. *Flowers* two inches long. *Perianth-tube* cylindric-oblong, green, rather shorter than the oblong yellowish green perianth limb; segments linear-oblong, obtuse, very thick. *Filaments* very stout, pale, twice as long as the perianth segments; anthers one inch long, yellow. *Style* short, clubbed at the rounded stigmatic end.—*J. D. H.*

Fig. 1, Plant; 2, leaf, *reduced*; 3, portion of leaf; 4, portion of panicle: both of *natural size*.



TAB. 5097.

AGAVE JACQUINIANA.

Jacquin's Agave.

Nat. Ord. AMARYLLIDÆ.—HEXANDRIA MONOGYNIA.

Gen. Char. (Vide supra, TAB. 4934.)

AGAVE *Jacquiniana*; caulescens, foliis lineari-lanceolatis acuminatis crassiusculis remote dentato-spinosis, spinis curvatis, scapo 10–12-pedali bracteato, florum fasciculis densis, perianthii viridis tubo (cum ovario adnato) teretiblongo 6-sulcato, limbi laciniis lineari-oblongis erectis in tubum subconniventibus canaliculatis obtusis, filamentis sepala plus quam duplo excedentibus stylum æquantibus, capsula urceolata obtusa trigona, panícula demum sobolifera.

AGAVE *Jacquiniana*. *Schultes, Syst. Veget.* 7. p. 727. *Kunth, En. Plant.* v. 5. p. 827.

AGAVE *lurida*. *Jacq. Coll.* v. 4. p. 94. t. 1. (*excl. syn.*) *Salm-Dyck, Hort.* 1834, p. 302.

The true *Agave lurida* of Hortus Kewensis, ed. 1. v. 1. p. 472, and ed. 2. v. 2. p. 302, is figured and described by Mr. Gawler (*Bot. Mag.* t. 1522) from the original Kew plant, which has since died. This is the *Agave Vera-Cruz* of Miller, *Gard. Dict.* ed. 8. n. 7; and Mr. Gawler has accurately pointed out the differences between this plant and the *Agave lurida* of Jacquin's 'Collectanea Botanica,' v. 4. p. 92. t. 1. In the original *Agave lurida* the flowers are lax and distant, twice the size of those of Jacquin's *Agave*; the tube (with the adnate ovary) is almost elongato-cylindrical, constricted above the base, longer than the sepals, which are broad-lanceolate, acuminate, concave, and spreading; the filaments of the stamens are quite erect, and green as well as the anthers. Jacquin's *Agave* has densely crowded flowers, the ovary six-furrowed, shorter than the sepals, which latter are quite erect and almost connivent, the stamens are spreading and yellow, and the peduncles are soboliferous or viviparous. About ten or twelve years since, we received an

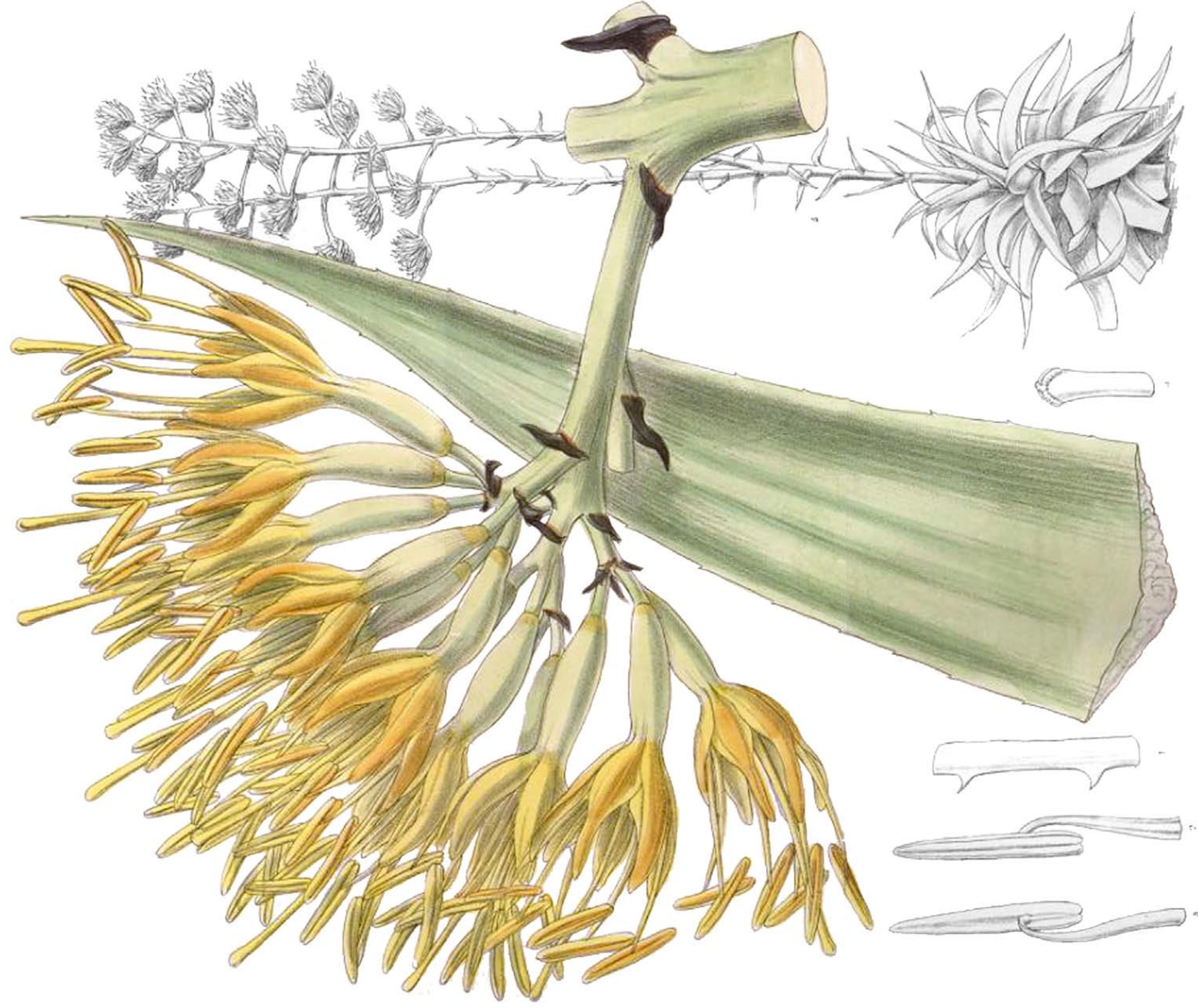
FEBRUARY 1ST, 1859.

Agave from Mrs. M'Donald, of Honduras (which accompanied the noble-flowered *Cereus Macdonaldiae*, Bot. Mag. t. 4707); and this, upon flowering in our Palm-house, in the autumn of 1858, corresponded in every particular with the figured description of Jacquin. That *Agave*, Schultes, in accordance with the views expressed by Mr. Gawler, has named *Agave Jacquiniana*. The fruit too, which is now (Jan. 1859) fully formed, precisely accords with that figured in the 'Collectanea Botanica,' and that fruit is not a little remarkable, being exactly urceolate, with a very contracted neck.

The above remarks may serve as a substitute for any long or tedious description.

DESCR. *Stem* ascending, a foot and a half high, scarred with the remains of fallen leaves. The perfect leaves form a crown, and are from two and a half to three feet long, narrow-lanceolate, pungently acuminate, spreading in all directions, the superior and younger ones erect, the middle ones horizontal, the inferior ones reflexed, remotely dentato-spinose with curved *spines*. *Scape* about twelve feet long, stout in proportion, quite erect, firm and rigid, almost scaly with withered *bracteas*. *Panicle* compound. *Pedicels* stout, dichotomously divided. *Flowers* geminate or ternate, bracteolate, some quite sessile. *Perianth* quite green, little more than two inches long; the tubular portion is oblong-oval, six-furrowed; the free portion, or *sepals*, more than half as long again as the tube, linear-oblong, channelled, obtuse, quite erect, and connivent, pressing as it were against the yellow, much exserted *stamens*; these stamens are twice as long as the sepals, spreading. *Anthers* very large, full-yellow, versatile. *Style* as long as the filaments. *Stigma* obscurely three-lobed. *Fruit*, or *capsule*, when fully formed, an inch and a half long, urceolate, almost black when ripe, with a very contracted neck, three-celled, three-valved, containing in each cell several black angular *seeds*.

Fig. 1. Flowering plant, on a very reduced scale. 2. Apex of a leaf, *nat. size*. Portion of a panicle, with flowers also, *nat. size*. 4. Ovary and style, after the sepals have fallen away. 5. Transverse section of the same:—*slightly magnified*.



TAB. 7532.
AGAVE KEWENSIS.
Native of Mexico.

Nat. Ord. AMARYLLIDEA.—Tribe AGAVEÆ.

Genus AGAVE, Linn.; (*Benth. & Hook. f. Gen. Plant.* vol. iii. p. 738.)

AGAVE (Euagave) *kewensis*; breviter caulescens, foliis 30–40 laxe rosatis oblongo-lanceolatis carnosocoriaceis viridibus, spina terminali debili vix pungente spinulis marginalibus parvis deltoideis brunneis, pedunculo valido elongato foliis multis rudimentariis lanceolatis prædito, floribus in paniculam laxam dispositis, ramis patulis apice multifloris, pedicellis brevibus, bracteis parvis ovatis scariosis, ovario cylindrico, perianthio lutescente tubo brevi infundibulari, lobis ovato-lanceolatis, staminibus lobis 2-3-plo longioribus, stylo staminibus longiore.

A. kewensis, *Jacobi Monogr. Agave*, p. 242. *Baker in Gard. Chron.* 1897, vol. i. p. 68; *Handb. Amaryllid.* p. 242.

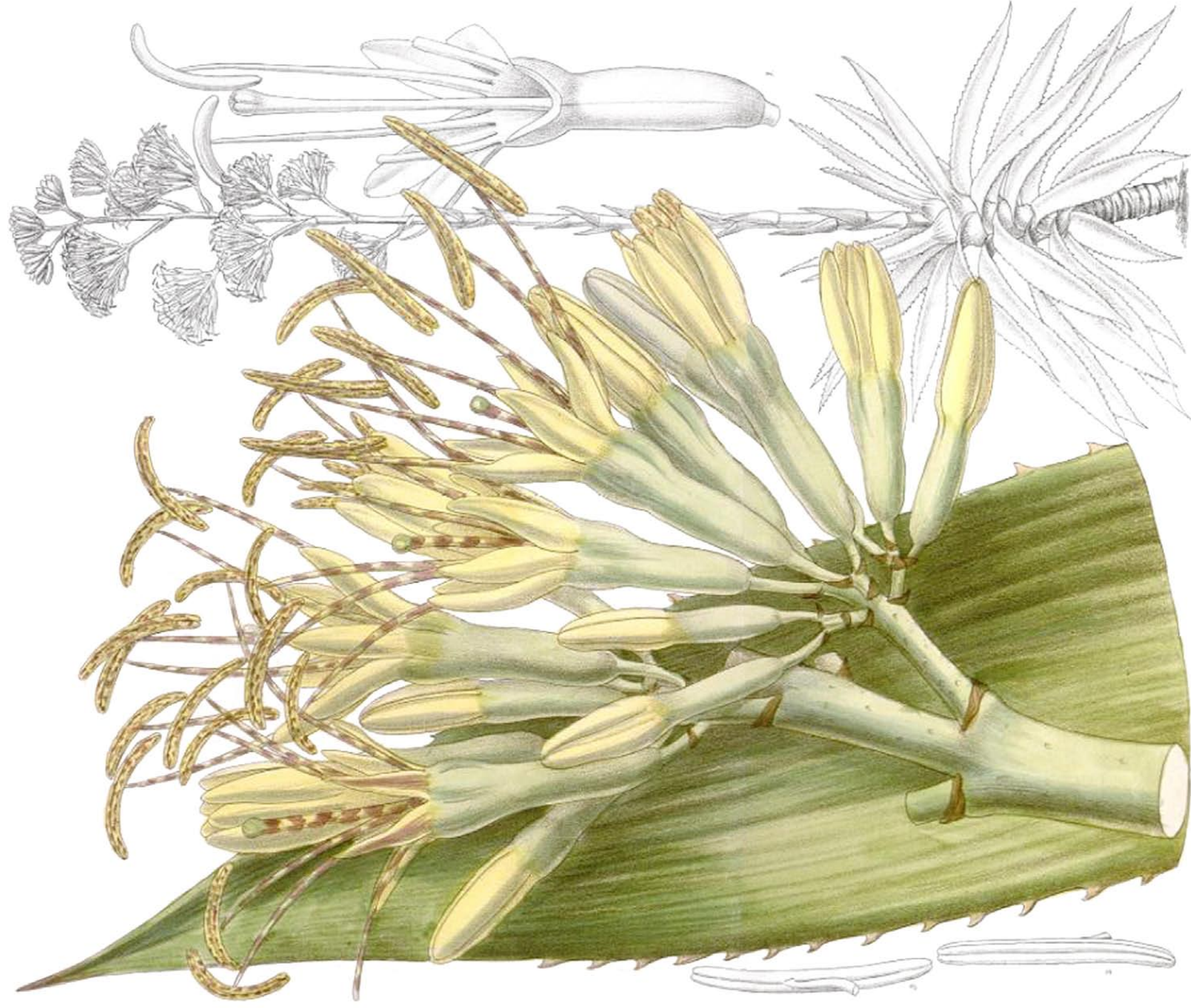
The present *Agave* belongs to the group with comparatively fleshy leaves, the species of which are less hardy and much rarer in cultivation than *A. americana*, *A. rigida*, and their allies. Of this group it is the finest and largest species which is known. When General Jacobi visited the Royal Gardens at Kew in 1865 he at once recognized it as a new and well-marked species, and shortly afterwards described it in his monograph under the name of *Agave kewensis*. It did not flower till 1895, and then proved to have the *americana* type of panicle. The plant did not perfect seed, and died after flowering, but the peduncle was cut and kept, and fortunately, as it was the only plant known, developed a number of bulbillæ after the flowers faded. These have been planted, and it is hoped that a number of young plants raised from them will shortly be ready for distribution.

DESCR.—*Trunk* produced to a length of half a foot below the leaves. *Leaves* oblong-lanceolate, thirty or forty in a rather lax rosette, three or four feet long, seven or eight inches broad at the middle, narrowed gradually to four inches above the dilated base, bright green on both surfaces, concave on the face in the middle; end spine weak and scarcely pungent; marginal spinules

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small, deltoid, brown. *Peduncle* fifteen feet long, accidentally forked in the present specimen, with many ascending lanceolate reduced leaves. *Inflorescence* laxly paniced, rather shorter than the peduncle; branches spreading, bearing a cluster of many flowers at the apex; pedicels short; bracts small, ovate, scariose. *Ovary* cylindrical, an inch long. *Perianth* yellowish; tube short, funnel-shaped; lobes ovate-lanceolate, ascending, nearly an inch long. *Stamens* more than twice as long as the perianth-lobes; anthers linear. *Style* overtopping the anthers.—*J. G. Baker.*

Fig. 1, Marginal spinules; 2, front view of anther; 3, back view of anther; 4, apex of style;—*all enlarged*; 5, whole plant, *much reduced*.



TAB. 7477.
AGAVE LAXIFOLIA.
Native of Mexico.

Nat. Ord. AMARYLLIDÆ.—Tribe AGAVÆ.

Genus AGAVE, Linn.; (*Benth. & Hook. f. Gen. Plant.* vol. iii. p. 738.)

AGAVE (*Euagave*) *laxifolia*; breviter caulescens, foliis 20—30 laxe rosulatis oblongo-lanceolatis crassis coriaceis facie sordide viridibus dorso pallide viridibus spina parva brunnea pungente terminatis, spinulis marginalibus parvis deltoideis apice brunneis, pedunculo valido elongato, floribus in paniculam laxam ramis corymbosis dispositis, bracteis parvis deltoideis, pedicellis apice elongatis, ovario cylindrico, perianthii tubo infundibulari limbi lobis lanceolatis basi deltoideis, staminibus limbo 2—3-plo. longioribus, antheris linearibus magnis.

A. laxifolia, *Baker*.

This *Agave* has been cultivated for many years in the Royal Gardens at Kew, and flowered for the first time in the summer of 1895. It was received as a variety of *A. mexicana*, but it differs widely from all the forms of that species by its laxly disposed rosette of leaves, which are green on both sides even in an early stage, and by its smaller spinules. Its place is in the section *Rigidæ*, in the neighbourhood of *A. excelsa*, Jacobi. The flowers give out a smell exactly like that of mice. As in many other species the style does not grow out to its full length till after the anthers of the same flower are faded.

DESCR.—Shortly caulescent. *Leaves* twenty or thirty in a lax rosette, oblong-lanceolate, firm in texture, one and a half or two feet long, three inches broad at the middle, by half as much above the dilated base, above which they are half an inch in thickness, dull green on the face, paler green on the back, without any glaucous tinge, even in an early stage, with a small brown pungent end-spine, and copious small deltoid marginal spinules, tipped with brown. *Peduncle* stout, four or five feet long. *Inflorescence* a lax panicle about as long as the peduncle, with corymbose branches; bracts small, deltoid; pedicels half an inch long, articulated at the tip. *Ovary* cylindrical, green, an inch and a half long. *Perianth-tube* funnel-shaped, half an inch

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long; lobes green, half as long again as the tube. *Stamens* inserted at the throat of the perianth-tube, two inches long; anthers large, linear. *Style* finally overtopping the anthers.—*J. G. Baker.*

Fig. 1, a flower cut open; 2, front view of anther; 3, back view of anther:—*All enlarged*; 4, entire plant, *much reduced*.



L. J. Smith del.

L. J. Smith sculp.

Det. by L. J. Smith, Washington, D. C. 1910

AGAVE LURIDA (α .) BROAD-LEAVED VERA CRUZ AGAVE.

Generic Character.—*Vide supra* No. 1157

Specific Character and Synonyms.

AGAVE *lurida*; (*subcaudescens*;) foliis glaucis dentato-spinosis; caule paniculato; racemulis laxe fasciculatis; corolla horizontali, limbo turbinato-patulo, laciniis ovato-lanceolatis; germine cylindraceo corollam æquante, prope basin confrietiore; flaminibus styloque dimidio magisve exsertis; stigmatibus capitato-trilobo, antheras transeunte. G.

AGAVE *lurida*. Hort. Kew. 1. 472. ed. 2. 2. 302. Willd. Sp. Pl. 2. 193; (*excluso in ultimis duobus Jaquino.*) Mart. Mill. Dill. n. 4.

AGAVE *Vera Cruz*. Mill. ed. 8. n. 7.

ALOE americana ex vera cruce foliis latioribus glaucis. Hort. Beaumont. p. 4; (*nec out Millero perperam H. L.*)

ALOE americana fobolifera. Herm. Hort. Lugd. 16. tab. 17.?
(*minus recte a Willdenovio ad viviparam allegata.*)

(β .) foliis angustioribus.

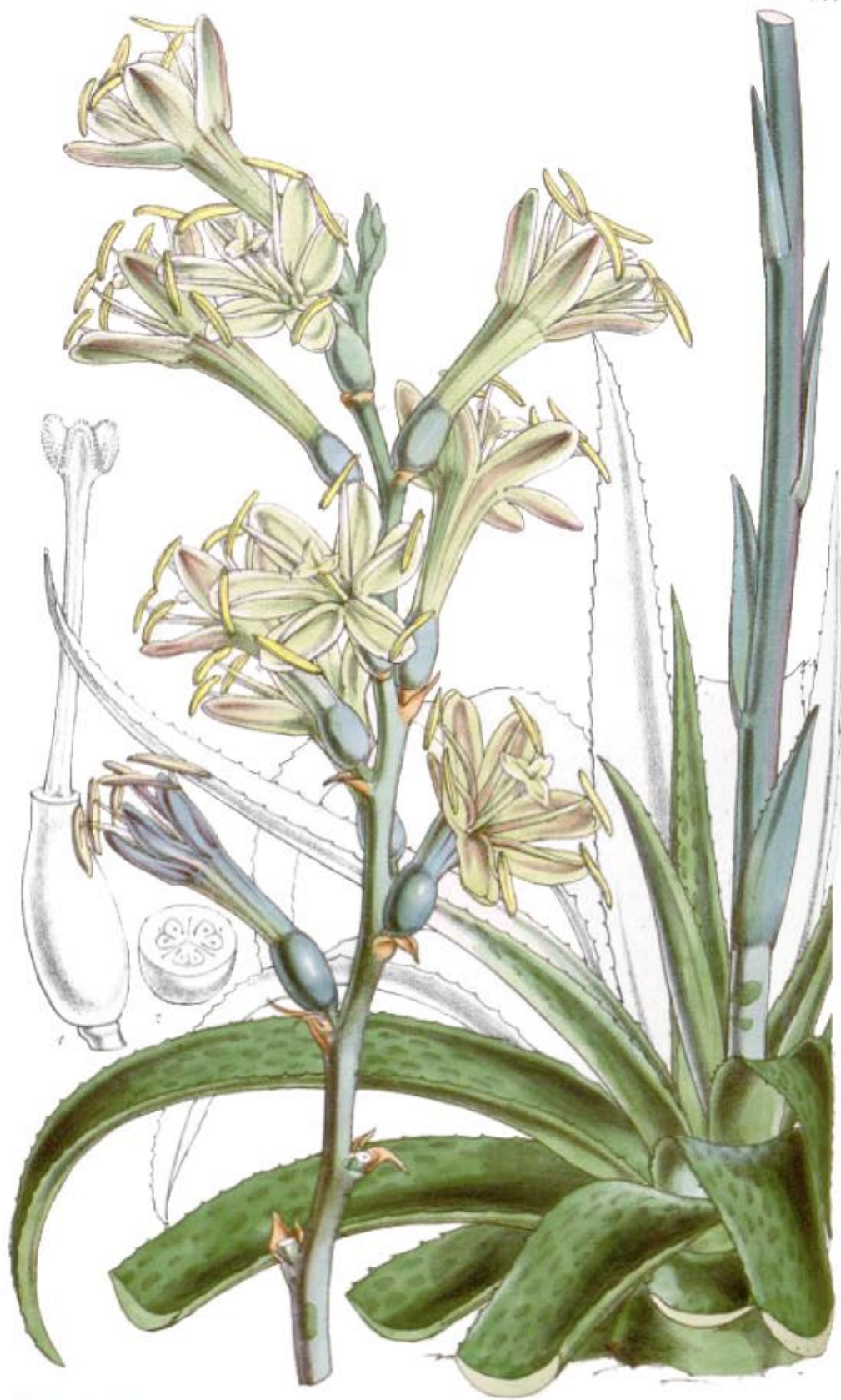
AGAVE *rigida*. Mill. Dict. ed. 8. n. 8.

ALOE americana ex vera cruce foliis angustioribus minus glaucis. Hort. Beaumont. p. 4.

The species first received the title of *Vera cruz* from MILLER, in the eighth edition of his Dictionary, and was afterwards adopted into the Hortus Kewensis by that of *lurida*, together with the *rigida* of the same, as its variety. But so slender and obscure is the information in either of these works on this head, that we are left to tradition to come at what plant was intended by them. Our drawing was taken from a part of a specimen that bloomed the summer before last in the Kew Gardens, in which the present superintendent, Mr. Arrow, tells us it had always been considered as their *lurida*; and it is but fair to give him credit for knowing well the plants which he had become acquainted

acquainted with while under the care of his father, whom he succeeded in office. His father is allowed to have been very exactly acquainted with the plants of MILLER, his contemporary and instructor; and the result of that acquaintance we obtain in the place we have cited from the first edition of the catalogue of those gardens, to which work his name is prefixed. Here we must rest the claims of our plant to specific identity with the original *lurida*. In the second edition of the Hortus Kewensis, the character of "stylo filamentis brevior" has been added since the publication of the first. This has been done under the impression that it was the same with the *lurida* of JACQUIN, which had appeared meanwhile; but its being so, upon a comparison of the figures that have been given of each, appears to us impossible. In that the inflorescence is close and ascending, the corolla nearly upright and twice smaller, the segments linear-ligulate or narrow oblong, blunt, tubularly connivent, ending incurvedly, twice longer than the germen, and the style considerably shorter than the stamens, which are also far divergent. JACQUIN says, that his species was known in the continental gardens by the appellation of the *Vera Cruz Aloe*; and we suspect that this circumstance decided with him its being the Kew *lurida*. His plant seems to us to approach nearer to *americana* than ours, which is nearer akin to the FOURCROË. We did not see the plant while in bloom, nor any part of the specimen from which the drawing was made; and can only learn from those that did, that the flower-stem was about twelve feet high, and that the plant altogether made a very fine appearance. A native of South-America. Requires to be kept in the dry stove. Like its larger congeners, rarely known to blossom in our collections.

G.



TAB. 5122.

AGAVE MACULOSA.

Spotted-leaved dwarf Agave.

Nat. Ord. AMARYLLIDÆE.—HEXANDRIA MONOGYNIA.

Gen. Char. (*Vide supra*, TAB. 4934.)

AGAVE *maculosa*; humilis acaulis, foliis lanceolato-subulatis carnosis cartilagineo-denticulatis canaliculatis maculatis, scapo bracteato, bracteis appressis, spica simplici laxiflora, bracteolis parvis membranaceis, perianthii tubo recto angulato, limbi laciniis tubum subsequantibus patentibus, staminibus longitudine laciniarum, stigmatis lobis 3 maximis.

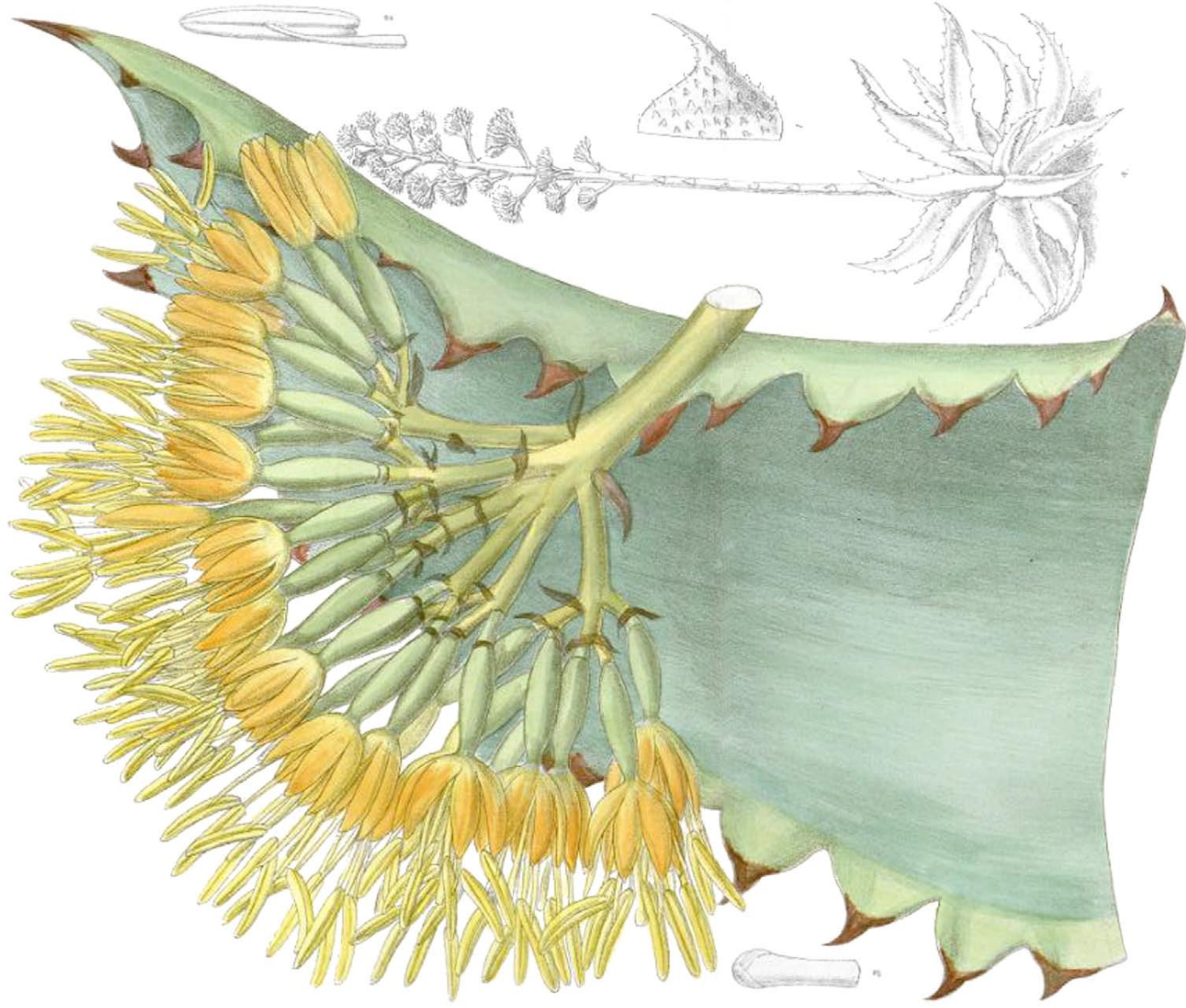
A species entirely new, as far as can be learned from the very imperfect descriptions of the individuals of the genus *Agave* in our books. The Kew Gardens owe the possession of it to the Horticultural Society of London, who received it from Texas. Its nearest affinity is probably with *Agave saponaria* of Dr. Lindley, from Guatemala, but that has leaves entire at the margins, and very different in shape and texture, the flowers larger, the tube curved, and the stamens as long as the entire flower. Our species flowers in September.

DESCR. Dwarf in stature, stemless. The *leaves* are rosulate, four to six inches long, thick and fleshy, lanceolato-subulate, amplexicaul at the base, recurved, channelled for the whole length, the margin with small cartilaginous teeth. *Scape* central, a foot to a foot and a half long, leafy below, leaves gradually passing into leaf-like *bracts*, appressed to the rounded scape. *Spike* six to eight inches long. *Flowers* ten to twelve, rather distant, bracteolate; *bracteoles* brown, small, membranaceous. *Ovary* inferior, oval, almost quite sessile. *Tube* of the *perianth* green, tinged with red, much longer than the ovary, straight; *limb* of six, spreading, oblong segments, white, with a broad brownish-green dorsal line, white within, reddish-yellow in decay. *Stamens* six. *Filaments* rather thick, scarcely longer than the

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laciniæ of the perianth. *Anthers* linear, versatile, yellow. *Style* stout, a little longer than the tube. *Stigma* of three large, divergent lobes, velvety at the margin.

Fig. 1. Flowers with the floral covering removed. 2. Transverse section of an ovary:—*magnified*.



TAB. 8442.

AGAVE MARMORATA.

Mexico.

AMARYLLIDACEAE. Tribe AGAVEAE.

AGAVE, Linn.; *Benth. et Hook.f. Gen. Plant.* vol. iii. p. 733.

Agave (Euagave) **marmorata**, *Roezl in Belg. Hort.* 1883, p. 238; *Baker Handb. Amaryll.* p. 179; a speciebus ceteris subsectionis *Americanæ* nuneupatae differt foliis glaucissimis asperrimis floribusque parvis jucunde luteis.

Frutex acaulis, rosula simplex usque 2 m. diametro et 1 m. fere alta, foliis circiter 30 eleganter patentirecurvis composita. *Folia* lanceolata, 1·05–1·1 m. longa et 25–27 cm. supra medium lata, basin versus ad 14 cm. angustata, basi biconvexa 6–8 cm. crassa praesertim subtus carinato-convexa, a medio marginibus incurvis subundulatis late et profunde canaliculata, glauca vel caesia, defloratione tantum viridescencia, utrique—praesertim subtus—asperrima, a basi usque apicem repandodentata, aculei validi, irregulares, deltoideo-cuspidati, cornei, brunnei, aspei, basi carnosae deltoideae vel ovatae insidentes, sinubus profundis rotundatis vel acutis separati, majores 20–50 mm. distantes et 15–20 mm. longi saepissime minoribus interjectis, inferiores et summi sensim minores ex margine recto vix repando; spina terminalis 20 mm. longa, griseo-brunnea, subulata, haud decurrens, asperrima. *Inflorescentiae* 3·75 m. altae; pedunculus pro rata plantae paullum robustus, 1·95 m. altus, viridis, basi bracteis foliaceis paucis munitus, superne bracteis vacuis deltoideis acuminatis scariosis circiter 15–16 cm. longis remotis onustus; panicula oblongo-cylindracea, circiter 1·8 m. longis et 55 cm. lata, ramis circiter 26 erecto-patentibus apice tripartitis majoribus 25 cm. longis; flores dense aggregati, parvi, jucunde lutei. *Pedicelli* brevissimi; bractee minutae, deltoideae, mox siccantes. *Perianthii* segmenta campanulato-conniventia, erecta, basi tantum in tubum brevem connata, apice mox siccantia, carnosula, laete lutea, exteriora ovato-lanceolata, acutiuscula, dorso convexa, intus late canaliculata, 16–18 mm. longa et 6 mm. lata, interiora breviora, obtusiora et latiora, dorso carinata, intus profunde canaliculata; stamina imo basi tubi affixa, filamenta lutea inaequalia, 3–3·5 cm. longa, antherae 16 mm. longae, luteae. *Ovarium* 20–22 mm. longum, 6 mm. latum, laete et nitide viride, subtrigono-cylindraceum utrinque attenuatum, sub tubo 6-sulcatum; stylus demum 35 mm. longus, luteus, stigma subtrilobum capitatum.—A. BERGER.

Agave marmorata was collected by Roezl in the Province of Tehuacan, Mexico, and has since then been rather rare in collections. Of two plants in the garden of the late Sir T. Hanbury at La Mortola, Ventimiglia, under this name, in 1901, one poled in autumn 1904. The scape was damaged by frost during the following winter, and it produced from the stump a large number of bulbils, by
JULY, 1912.

means of which it has been propagated and distributed. Other plants identical with these have been received since at La Mortola from the Botanic Gardens in Palermo and Paris under the name of *A. asperrima*. One of the plants derived from the original specimen flowered at La Mortola in June, 1911, and provided the material on which our figure is based. Our plant agrees well with the description of *A. marmorata* given by Baker in his Handbook of the Amaryllideae, p. 179; his remark, "between *A. Scolymus* and *A. americana*," well expresses its characters. The leaves are glaucous, almost white, and only become greener in dying off on the flowering plant. They are extremely rough, especially on the underside and near the point; the marginal and end spines are also tubercular and rough. The Indians are said to make use of the leaves in veterinary medicine.

The position of *A. marmorata* is not altogether clear. From the leaves it might be considered a member of the *Americanae* of Baker, but the small bright yellow flowers preclude this and suggest a closer affinity to the species allied to *A. Willdingii*, Tod., though here again *A. marmorata* differs as regards the arrangement of its flowers on the branches.

DESCRIPTION.—*Shrub*; stem 0; rosette simple, without suckers or offshoots, 2 yards in diameter and 1 yard high, with about thirty leaves. *Leaves* spreading from the base, recurved from the middle and with a slightly inflexed tip, lanceolate or oblanceolate-spathulate, 40–44 in. long, above the middle 10–11 in. broad, hence gradually narrowed to a channelled point ending in a conical, greyish brown, very rough spine, $\frac{3}{4}$ in. long, not decurrent; constricted towards the base and about $5\frac{1}{2}$ in. broad at the neck, about 3 in. thick at the base, convex on both sides, but very markedly and almost broadly keeled on the underside, gradually thinner above, broadly channelled and with the margins erect and somewhat undulate, much repand between the large irregular spines, very glaucous or almost white or with a bluish tint, becoming paler and greener only before decaying, very rough everywhere, especially on the underside and near the top; marginal spines from a broad horny base, cuspidate-uncinate, brown, rough, rising from a broad

ovate or deltoid fleshy cushion of the leaf margin, $\frac{3}{4}$ –2 in. distant and 7–8 lin. long, separated by a roundish or acute sinus; the lower and higher marginal spines gradually smaller and the edge not repand between them. *Inflorescence* about 12 ft. high; scape relatively slender, about 6 ft. long, green, smooth, with several deltoid acuminate scarios empty bracts, $2\frac{1}{2}$ –6 in. long, and a few leaf-like bracts at its base; panicle oblong-cylindric, about 6 ft. long and 22 in. broad, with about twenty-six spreading branches, the longest 10 in. long; flowers in dense clusters, bright yellow, with a somewhat unpleasant smell, rather small, $1\frac{1}{2}$ in. (including the style $2\frac{1}{2}$ in.) long. *Pedicels* short, bracts minute, soon drying. *Perianth-segments* united at their base into a short tube, erect, campanulate, fleshy, bright yellow, soon withering at the top; the outer ones ovate-lanceolate, acute, 8–9 lin. long and 3 lin. broad, convex on the back and broadly channelled inside, the interior shorter, more obtuse and broader, with a fleshy keel at the back and a deep furrow inside. *Stamens* yellow, filaments inserted at the base of the tube, erect, unequal, 15–17 lin. long; anthers yellow, 8 lin. long. *Ovary* bright and glossy green, subtrigonous or subcylindric, tapering at both ends and below the tube shortly 6-furrowed, 10–11 lin. long and $2\frac{1}{2}$ –3 lin. broad; style ultimately over $1\frac{1}{2}$ in. long, yellow, somewhat thickened at the obscurely 3-lobed stigma.

Fig. 1, spine from leaf-margin; 2, anther; 3, stigma; 4, sketch of entire plant, from photographs:—*all enlarged except 4, which is much reduced.*

TAB. 7757.

AGAVE PEACOCKII.

Native of Central Mexico.

Nat. Ord. AMARYLLIDÆ.—Tribe AGAVEÆ.

Genus AGAVE, Linn.; (*Benth. & Hook. f. Gen. Plant.* vol. iii. p. 738.)

AGAVE (Littæa) *Peacockii*; acaulis, foliis densissime rosulatia in catervam sub-hemisphericam 4 ped. diam. congestis extimis patulis intimis erectis omnibus ensiformi-oblancoelatis coriaceo-carnosis medio 4 poll. latis apice in spinam rigidam fere pollicarem brunneam productis basin versus angustatis saturate viridibus medio versus pallidis, marginibus non corneis, spinis marginalibus inæqualibus irregulariter subdistanter insertis brunneis majoribus e basi elongata nunc fere $\frac{1}{2}$ poll. longa repente incurvis pungentibus, scapo cum inflorescentia 14 ped. alto viridi inferne bracteis lanceolatis sparsis aucto, inflorescentia valde angusta subspicæ formi stricta e fasciculis innumeris crasse pedunculatis 3–5-floris constante, pedicellis brevibus crassis, bracteis 1–3-pollicaribus subulato-lanceolatis bracteolisque minoribus brunneis membranaceis, floribus 2–2 $\frac{1}{4}$ poll. longis erectis, ovario fusiformi terete saturate viridi, perianthii segmentis ovario paullo brevioribus lineari-oblongis obtusis medio crasse coriaceis dorso viridibus sanguineo punctatis marginibus membranaceis, filamentis segmentis fere duplo longioribus robustis pallide viridibus, antheris magnis $\frac{1}{2}$ poll. longis viridibus, stylo robusto filamentis longiore, stigmatibus clavatis.

A. *Peacockii*, *Croucher in Gard. Chron.* 1873, p. 1400, fig. 283. *Baker, Handb. Amaryll.* p. 171.

The flowering of a previously unfigured *Agave* is a satisfactory event, because without good figures made from specimens in a flowering condition, the determination by descriptions alone of the species of this large and economically important genus is never satisfactory. As regards *A. Peacockii* such a figure was especially needed, for the original description, made from a young flowerless specimen, is quite insufficient for the identification of the species. Fortunately there can be no doubt as to the *Agave* here figured being that to which the name *Peacockii* is given, for it is the type specimen purchased by the Royal Gardens at the sale in 1889 of the rich collection of Succulents formed by the late Mr. Peacock, of Hammersmith. It flowered in the Palm House of the Royal Gardens in December, 1899, having thrown up a scape which, with the inflorescence, was fourteen and
FEBRUARY 1ST, 1901.

a half feet high. It is a native of the province of Tehuacan, in Central Mexico, whence it was imported by Mr. Roezl.

Descr.—Stemless. *Leaves* densely rosulate, forming a sub-hemispheric cluster nearly four feet in diameter, the outermost spreading horizontally, the innermost erect, all about two feet long by four inches broad above the middle, oblong-ensiform or oblanceolate, contracted above the base, terminated by a rigid brown, strict spine an inch long, thickly fleshy, strict, rigid, slightly convex above, more so beneath; upper surface very dark green, paler towards the centre; margins not cartilaginous in an old state, beset rather distantly and irregularly with unequal, short, brown spines, the largest of which consist of an elongate base, sometimes half an inch long, suddenly contracted into an incurved, pungent tip. *Scape* with the very narrow, spiciform panicle, fourteen and a half feet high, strict, erect, clothed below with distant subulate-lanceolate bracts. *Inflorescence* of innumerable very short, stout, sub-erect, green, bracteate peduncles, bearing clusters of three to five bracteolate, shortly, stoutly pedicelled, sub-erect, green flowers two to two and a half inches long. *Bracts* one to three inches long, and smaller bracteoles subulate-lanceolate, membranous, brown. *Ovary* fusiformly cylindric, green, smooth. *Perianth-segments* not as long as the ovary, linear-oblong, obtuse, thickly fleshy, green with blood-red spots, margins rather broadly winged, membranous, pale green. *Filaments* about twice as long as the perianth, very stout, erect; anthers half an inch long. *Style* rather longer than the stamens, stigma clavate.—*J. D. H.*

Fig. 1, upper third of leaf; 2, cluster of flowers, both of *nat. size*; 3, leaf half *nat. size*; 4 and 5, stamens; 6, tip of style and stigma:—*All enlarged*; 7, figure of whole plant $\frac{1}{18}$ of *nat. size*.



MS. del. J.N. Fitch lith.

Vireo. 2. Brooks, Day & Son Lith.

L. Reeve & Co. London

TAB. 8429.

AGAVE PROTUBERANS.

Mexico.

AMARYLLIDACEAE. Tribe AGAVEAE

AGAVE, *Linn.*; *Benth. et Hook.f. Gen. Plant.* vol. iii. p. 738.

Agave protuberans, *Engelm. ex Baker, Handb. Amaryll.* p. 197; species ex affinitate *A. virginicae*, *Linn.*, a qua floribus congestis tuboque perianthii multo brevior differt.

Herba, acaulescens. Tuber globosum, 5 cm. diametro, perenne. *Folia* radicalia, rosulata, subcarnosa, fragilia, lineari-lanceolata, 15–20 cm. longa, 3–4 cm. lata, supra canaliculata vel fere conduplicata, viridia, brunneo-purpureo-maculata, marginibus planis vel undulatis, angustissime albo-cartilagineis, minutissime denticulatis instructa. *Scapa* erecta, 60 cm. alta, 6 mm. diametro, rigida, subglauca. *Bracteae* lanceolatae, acuminatae, 4·5 cm. longae, sursum gradatim minores, crassae. *Spica* 10 cm. longa, densiflora; flores in papillas rhachidis tumidas singulatim insidentes; bracteolae 2, altera abaxialis, e basi deltoidea 6 mm. lata acuminata, 12 mm. longa, purpurascens, albo-marginata, altera lateralis, 4 mm. longa, 1·5 mm. lata, membranacea, albescens. *Perianthii* tubus 3 mm. longus; segmenta 1·5 cm. longa, 5 mm. lata, oblonga, obtusa, apice leviter cucullata, viridescens, minute purpureo-maculati. *Filamenta* longe exserta, 4 cm. longa, subulata, alba, purpureo-maculata; antherae oblongae, 13 mm. longae, brunneo-purpureae. *Ovarium* 10 mm. longum, 6 mm. latum, 6-costatum, obliquum; stylus cylindricus, staminibus aequilongus; stigma incrassatum, trilobum.—*A. guttata*, *Hemsl. Biol. Amer.-Centr.* vol. iii. p. 348, tab. 87, non *Jacobi et Bouché*. *Leichtlinia protuberans*, *Herm. Ross in Icon. Plant Hort. Panorm.* p. 8, tab. 3 (1896); *Engl. & Prantl, Natürl. Pflanzenf. Nachtr.* ii. p. 11, and iii. p. 49.—C. H. WRIGHT.

The subject of our illustration is one of those *Agaveae* which differ both from the true *Agaves* and from the *Lit-taeas* in having the flowers solitary on simple racemes or spikes and in having herbaceous leaves without a terminal pungent spine. Considerable diversity of opinion has existed with regard to the status of the group which about a century ago appeared to *Salisbury* entitled to generic recognition, though the name *Manfreda*, proposed by him for *Agave virginica*, *Linn.*, figured at t. 1157 of this work, was not published until 1866. Thirty years later *H. Ross* treated the group as a distinct genus *Leichtlinia*, a name bestowed upon the species now figured because of its introduction by the late Mr. Max *Leichtlin*. But the structure of the flowers in all species of *Manfreda*, which

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name takes precedence of *Leichtlinia*, agrees so well with that of the Agaves and the Littaeas that it seems desirable to consider the group a subgenus of *Agave*. All the Manfredas are Mexican with the exception of *A. virginica* which is confined to the Southern United States. One of the best known is *A. maculata*, Regel, figured at t. 5122 of this work as "*A. maculosa*." The Kew plant of *A. protuberans* was received from Mr. Leichtlin in 1882 shortly after its introduction from Mexico, where it inhabits the mountains near San Luis Potosi at altitudes of 6,000–8,000 feet above sea level. The species flowered in 1908 with Mr. R. H. Beamish at Glounthaune near Cork, and in June, 1910, at Colesborne, with Mr. H. J. Elwes, to whom we are indebted for the material for our figure. Like the other Manfredas, *A. protuberans* requires greenhouse conditions.

DESCRIPTION.—*Herb*; stemless; tuber globose, 2 in. wide, perennial. *Leaves* radical, rosulate, somewhat fleshy, fragile, linear-lanceolate, 6–8 in. long, $1\frac{1}{4}$ – $1\frac{3}{4}$ in. wide, above channelled or almost conduplicate, green blotched with brownish purple, margins even or waved, narrowly white-cartilaginous and very finely denticulate. *Scape* erect, 2 ft. high, $\frac{1}{4}$ in. thick, rigid and slightly glaucous; bracts lanceolate, acuminate, the largest $1\frac{1}{2}$ in. long or longer, gradually diminishing upward, thick. *Spike* 4 in. long, dense-flowered; flowers solitary on the swollen nodes of the rachis; bracteoles 2, an abaxial with a deltoid base $\frac{1}{4}$ in. wide, acuminate at the tip, reaching $\frac{1}{2}$ in. in length, purplish with white margins, and a lateral which is much smaller, membranous and whitish. *Perianth* with a short tube, only $\frac{1}{8}$ in. long, and with oblong, obtuse segments slightly hooded at the tip, greenish and finely blotched with purple, $\frac{1}{3}$ in. long, $\frac{1}{5}$ in. wide. *Filaments* far exserted, $1\frac{3}{4}$ in. long, subulate, white blotched with purple; anthers oblong, $\frac{1}{2}$ in. long, brownish purple. *Ovary* $\frac{1}{3}$ in. long, $\frac{1}{4}$ in. wide, 6-ribbed, oblique; style cylindric, as long as the stamens; stigma thickened, 3-lobed.

Fig. 1, portion of perianth, showing staminal insertion and stamens; 2, pistil, showing ovary in vertical section; 3, transverse section of ovary; 4, ovule; 5, sketch of an entire plant:—all enlarged except 5, which is much reduced.



TAB. 6292.

AGAVE (LITÆA) SARTORII.

Native of Mexico and Guatemala.

Nat. Ord. AMARYLLIDACEÆ.—Tribe AGAVEÆ.

Genus AGAVE, *Linn. (Jacobi in Hamburg Gartenzeit., 1864, et anni seq.).*

AGAVE (*Littæa*) *Sartorii*; breviter caulescens, caudice interdum furcato, foliis circiter 30 laxe rosulatis lanceolatis bipedalibus carnosocoriaceis viridibus sæpissime albidovittatis, e medio ad apicem angustatis, mucrone terminali haud pungente, aculeis marginalibus minutis crebris patentibus deltoideis inæqualibus castaneis, scapo foliis 2–3-plo longiore foliis reductis pluribus linearibus erectis prædito, panícula cylindrica subspicata tripedali cernua, pedunculis et pedicellis subobsoletis, bracteis parvis linearibus basi deltoideis, perianthio viridi luteo tincto, ovario oblongo, tubo late infundibulari ovario equilongo fauce dilatato segmentis oblongis erecto-falcatis, genitalibus longe exsertis.

A. Sartorii, *K. Koch in Wochensch.* 1860, p. 37; *Jacobi, Monog. Agave*, p. 128.

A. aloina, *K. Koch, loc. cit.* p. 37.

A. Noackii, *Jacobi, Monog. Agave*, p. 125.

A. pendula, *Schnittspahn; Jacobi, Monog. Agave*, p. 130.

A. cæspitosa, *Todaro Hort. Bot. Panorm.* p. 32, t. 8.

FOURCROYA *Noackii, Hort.*

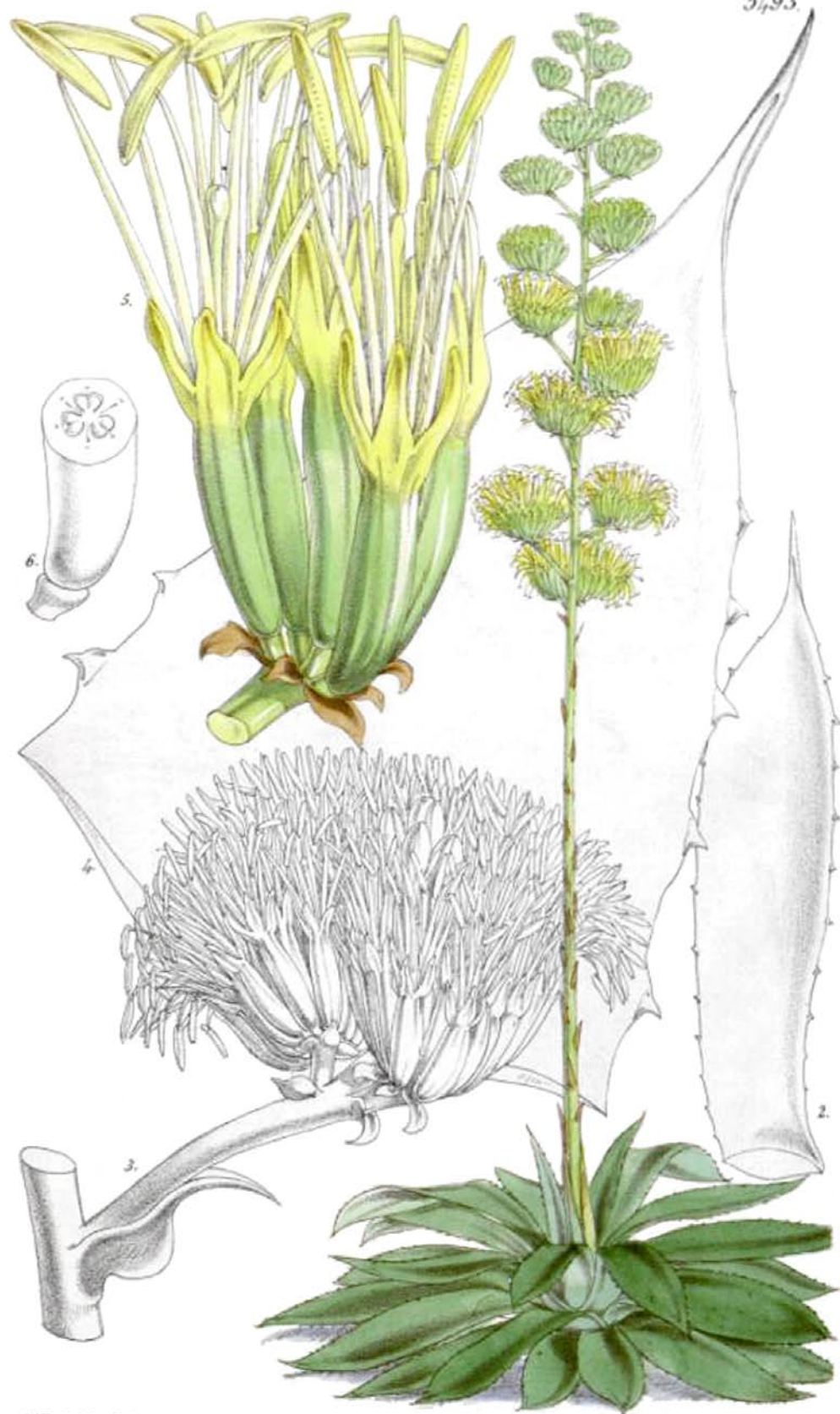
This is a very well-marked species of *Agave*, easily recognisable in the large group of the carnosocoriaceæ by its caulescent habit, which is very rare in the genus as a whole, and confined to this single species in the group in question. It was first introduced to the Berlin botanic garden by Dr. Rohrbach about 1850, and has since been received from the district of Orizaba, in Mexico. Our first notice of its flowering is by Dr. Schnittspahn in 1857 in the *Zeitschrift des Gartenbauvereines zu Darmstadt*. It is fully described, so far as leaves go, under three different names in the monograph of Jacobi, and has lately been figured under a fourth by Todaro from a specimen that flowered at the botanic garden at Palermo. The present plate is after a drawing of a specimen that flowered with Mr. Wilson Saunders, at Reigate, in March, 1870, and it has flowered at least twice

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at Kew within the last few years; the last time this present spring.

DESCR. *Caudex* reaching in the specimen drawn a length of a foot, forked dichotomously, and bearing two tufts of leaves. *Leaves* about thirty in a lax rosette, lanceolate, two feet long, three inches broad at the middle, narrowing gradually to a non-pungent point, and to a breadth of two inches above the dilated base, somewhat fleshy in texture, one-eighth to a quarter inch thick in the centre, an inch thick at the base, bright green, with often a broad pale band down the centre, the margin furnished with copious close, unequal, deltoid, spreading, chestnut-brown spines. *Scape* twice or three times as long as the leaves, furnished with numerous erect linear reduced bract-like leaves. *Panicle* cernuous, subspicate, cylindrical, three feet long; peduncle and pedicels nearly obsolete; bracts linear, from a dilated base, much shorter than the flowers. *Perianth* green, with a yellow tinge in the upper part; ovary oblong, half-inch long; tube broadly funnel-shaped, as long as the ovary, dilated at the throat; segments oblong, obtuse, half-inch long, erect-falcate when fully expanded. *Filaments* inserted in the perianth-tube, subulate, reaching a length of eighteen to twenty-one lines; anthers ligulate, versatile, three-eighths of an inch long. *Style* reaching as high as the top of the stamens; stigma capitate. *Capsule* oblong-trigonous, one and a quarter to one and a half inches long.—*J. G. Baker.*

Fig. 1, The whole plant, *much reduced in size*; 2, a leaf *less reduced*; 3, summit of a leaf; 4, portion of the panicle, with several pairs of flowers; 5, capsule, *the three last natural size*.



TAB. 5493.

AGAVE SAUNDERSII.

Mr. Saunders's Agave.

Nat. Ord. AMAIRYLLIDEÆ.—HEXANDRIA MONOGYNIA.

Gen. Char. (Vide supra, TAB. 5333.)

AGAVE *Saundersii*; acaulis, foliis horizontaliter patentibus glaucis bipedalibus 4 uncias latis lanceolato-oblongis basi angustiore spinoso-acuminatissimis, margine spinosis, spinis triangulari-acutissimis subdistantibus atro-purpureis, scapo 14-pedali copiose bracteato, pedunculis 4-pollicaribus teretibus horizontalibus distantibus, basi unibracteatis, bractea ovata longe subulata basi inferne lato-carinata, fasciculis globosis submultifloris, floribus compactis subsessilibus basi bracteolatis, ovariis subcylindraceis obscure sulcatis viridibus sesquipollicaribus, limbi flavi laciniis suberectis oblongo-lanceolatis acutis, staminibus perianthii longitudine æqualibus, antherisque pallide flavis, stylo $\frac{1}{2}$ longitudine filamentorum, stigmate globoso, capsula (immatura) elliptica.

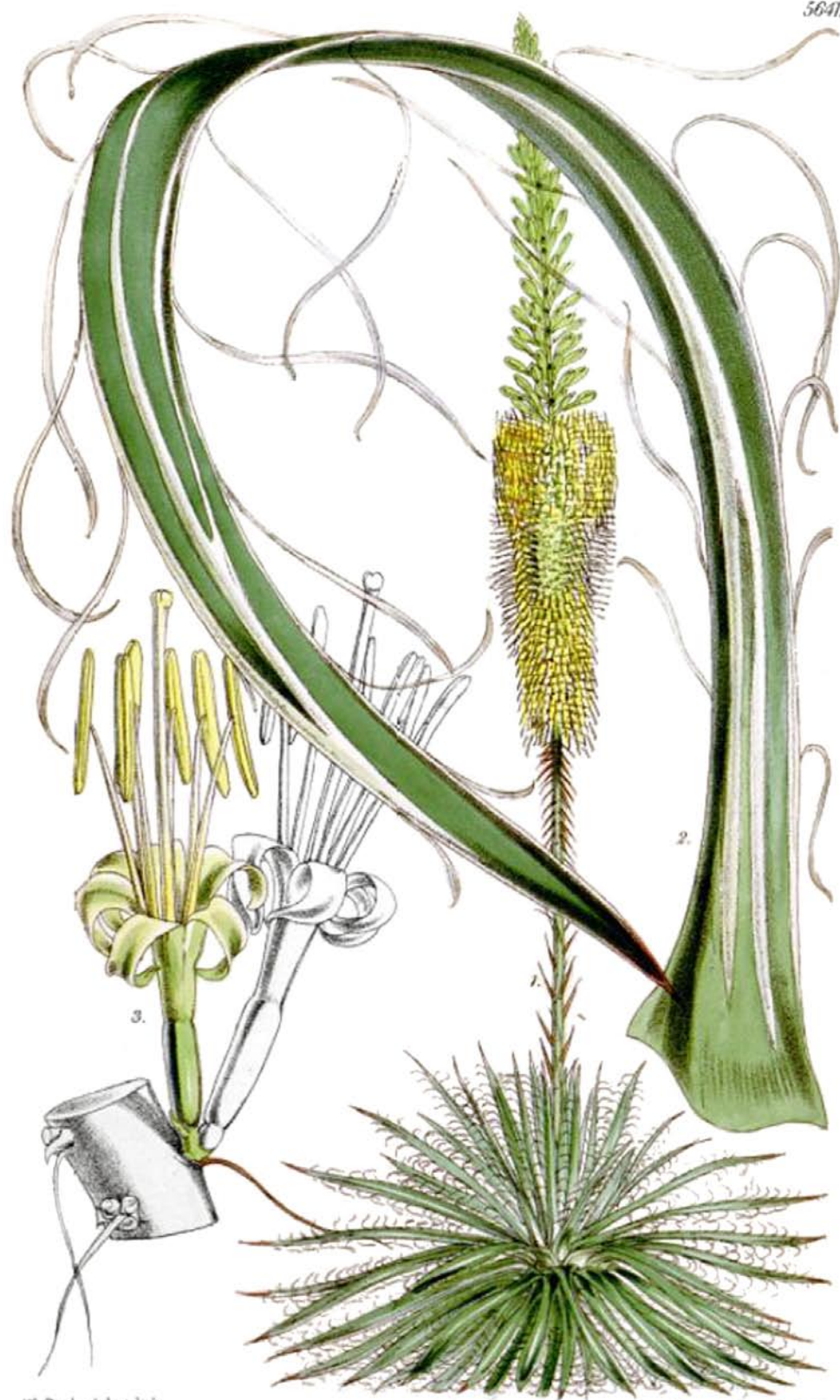
Perhaps no plants require more illustration by figures than the species of a genus of which we here represent one, which we venture to consider as new. It promises to be a genus numerous in individuals, and these of a most interesting character, and of which the well-known American Aloe (*Agave Americana*) is the type. Travelling botanists in vain attempt to preserve specimens for the herbarium,—they cannot therefore be studied *there*;—and in our gardens, except in some great public establishments, few are disposed to sacrifice the space necessary for their cultivation, and they are proverbially shy of flowering, so much so, that the *Agave Americana* is generally and to this day spoken of as the plant which “flowers once in a hundred years. It is true that of late, in a German work,* a “monographische Skizze” is given of no less than sixty-four species, apparently of those in cultivation, with brief specific characters,—a large proportion of them derived from the foliage alone, so that they

* ‘Wochenschrift des Vereines zur Beförderung des Gartenbaues in den Königlich-Preussischen Staaten, für Gärtnerei und Pflanzenkunde.’

can be of very little service in scientific botany. At any rate, we fail to discover our present *Agave* among them. It is from the rich collection of succulents in the possession of our friend William Wilson Saunders, Esq., of Heathfield, Reigate. Its origin is not known, and we can only say it is probably a native of Mexico, a region so rich in species of this genus. It has flowered in the winter season, and now, January, 1865, the fruit seems fully formed, but at present quite green.

DESCR. Stemless. *Leaves* singularly spreading, nearly horizontally, the lowest ones lying close to the ground, one and a half to two feet long, moderately thick, glaucous, oblong-lanceolate, suddenly terminating in long purple-brown *spines*, nearly plane or with the spinous margins a little upturned; the *spines* distant, from a broad base triangular, dark purple-brown. *Scape*, in our plant, fourteen feet long, stout in proportion, cylindrical, beset at very short intervals with erect, appressed, subulate scales, which soon become marcescent. *Clusters* or *fascicles* of flowers numerous, subglobose, densely crowded, terminating in a horizontal *peduncle*, four inches long, its base subtended by a large, ovate, acuminate *bract* deeply carinated below. *Secondary fascicles* subsessile and bracteolated at the base. *Ovary* one and a half inch long, green, subterete, but obscurely grooved or six-angled, crowned by the yellow *limb* of four, nearly erect, acuminate *segments*. *Stamens* six, yellow; *filaments* equal in length with the perianth, and inserted between the segments. *Anthers* very large, deep-yellow, versatile. *Style* half the length of the filaments, terminated by a clavate *stigma*. *Capsule* (at present immature) nearly elliptical, crowned by the withered limb of the perianth.

Fig. 1. Greatly reduced figure of the entire plant. 2. Much reduced figure of a leaf. 3. Reduced figure of a fascicle of flowers, with its peduncle and carinated bract at the base. 4. Apex of a leaf:—*natural size*. 5. Secondary cluster of flowers,—*natural size*. 6. Transverse section of an ovary,—*slightly magnified*.



TAB. 5641.

AGAVE SCHIDIGERA.

Splintered-Leaved American Aloe.

Nat. Ord. AMARYLLIDÆ.—HEXANDRIA MONOGYNIA.

Gen. Char. (Vide supra, TAB. 5333.)

AGAVE *schidigera*; acaulis, foliis horizontaliter patentibus pedalibus anguste ensiformibus spinuloso-acuminatis supra basin dilatata paulo angustatis viridibus albo-lineatis marginibus late albo-lanatis in filis planis elongatis retortis desinentibus, scapo stricto gracili 6-pedali bracteis elongatis strictiusculis acicularibus dense obsito, spica elongata stricta subtaxiflora, floribus viridibus 2–3-nis, fasciculis subsessilibus bractea filiformi subtensis, ovario cylindrico pollicari glaberrimo, perianthii tubo subinfundibuliformi ovario æquilongo, lobis lineari-oblongis revolutis acutis tubo æquilongis, filamentis subulatis perianthio æquilongis strictis, antheris lineari-elongatis.

AGAVE *sebidigera*. Lemaire in *Verschaffelt Cat.* 1861; *Compte Rendu Soc. Roy. d'Agric. et Bot. Gand*, 1861; *Illust. Hortic. v. 8. sub t. 287, et v. 9. t. 330.*

AGAVE *filifera*, var. *pannosa* et var. *adornata*. Scheidw. in *Compte Rendu Soc. Roy. Agric. et Bot.*, et in *C. Koch, Wochenschr. n. 36.* 1861.

The remarkable plant here figured was introduced into Europe in 1861, from Mexico, by Mr. Verschaffelt, of Ghent, and its foliage was figured in the 'Illustration Horticole' of the following year, where it is also described by M. Lemaire, on whose authority our synonyms and quotations rest. Our specimen flowered in January in Mr. Williams's establishment, Paradise Nursery, Holloway, where the drawing was executed by Mr. Fitch. As a species, M. Lemaire states that it is so very closely allied to *A. filifera*, that he was at first disposed to regard it as a variety of that plant, but that it differs in the more linear (less oblong) leaves, more dilated at the base, their less pungent tips, and the very much thicker, broader, woolly, torn edges of the leaf, MAY 1ST, 1867.

while, according to the figure of the *A. flifera* in the 'Revue Horticole,' the corolla-lobes of that plant are shorter.

DESCR. *Stem* none. *Leaves* forming a low subhemispherical mass; lower spreading and recurved; upper suberect, about one foot long, narrow linear-ensiform, with red sub-pungent apices, dilated at the base and slightly contracted above it; with irregular longitudinal broad white bands on both surfaces, and white edges, from which are given off woolly recurved flattened broad filaments, one to three inches long. *Scape* strict, erect, about six feet high, lower third covered with numerous erect or recurved subulate red-brown bracts, two inches long and upwards. *Spike* rather slender, very many-flowered, cylindric. *Flowers*, including the stamens, three and a half inches long, green, with yellow anthers, rather dense, in fascicles of two or three, each fascicle subtended by a filiform red flexuous bract. *Pedicels* very short, with very small broad bracteoles. *Ovary* cylindric, glabrous. *Perianth* tube as long and broad as the ovary, lobes as long as the tube, linear, acute, revolute. *Filaments* strict, subulate, one inch long; *anthers* nearly as long, linear-elongate. *Stigma* obtusely three-lobed.—*J. D. H.*

Fig. 1. Reduced figure of entire plant. 2. Leaf, *nat. size*. 3. Flowers, *nat. size*.



TAB. 7567.
AGAVE SCHOTTI.
Native of Arizona.

Nat. Ord. AMARYLLIDÆ.—Tribe AGAVEÆ.

Genus AGAVE, Linn.; (*Benth. & Hook. f. Gen. Plant.* vol. iii. p. 738.)

AGAVE (Littæa) *Schottii*; acaulis, foliis dense rosulatis e basi ovata linearibus rigidis apice pungentibus facie canaliculatis dorso carinatis margine filiferis, scapo elongato gracili, floribus in paniculam laxam subspicuatam subsecundam dispositis, bracteis parvis ovatis cuspidatis, pedunculis pedicellisque brevibus clavatis, perianthio citrino tubo elongato infundibulari, lobis oblongis tubo brevioribus, staminibus vix exsertis supra medium tubi insertis, antheris magnis linearibus, fructu duro parvo oblongo.

A. *Schottii*, *Engelm. Notes on Agave*, p. 17. *Collected Works*, p. 315. *Baker Handb. Amaryllid.* p. 307. *Miss Mulford in Report Missouri Gard.* vol. vii. (1896) p. 72, t. 29.

A. *geminiflora* var. ? *Sonoræ*, *Torrey in Bot. Mex. Bound.* p. 214.

This very distinct *Agave* resembles *A. filifera* and *A. schidigera* in having leaves the edges of which break away into fibres, but differs from them widely in its lax subsecund inflorescence, bright yellow flowers and short stamens. It is very abundant on the mountains of Southern Arizona, at an elevation of about five thousand feet above sea-level. Professor Toumey reports that it so thickly covers large areas, miles in extent, on the southern slopes of the mountains of Santa Catalina that it is almost impossible to travel through it. It is called *Amole* in its native country, and the rootstock is sold as affording a substitute for soap. It was first collected by the late Dr. Arthur Schott in 1855. The Kew plant was purchased at the sale of the collection of Mr. J. T. Peacock in 1889, but did not flower till March, 1897. There is a dwarf variety with serrulate leaves which extends further south than the type.

Descr.—*Rootstock* two inches in diameter, thickly clothed with the fibrous relics of old leaves. *Leaves* forming a dense sessile rosette, linear from an ovate base, a foot long, pungent at the apex, channelled down the face,

DECEMBER 1ST, 1897.

acutely keeled on the back, with edges breaking up into fine fibres. *Scape* slender, four or five feet long. *Inflorescence* a lax, subspicate, subsecund panicle a foot long; bracts ovate, cuspidate, very small; peduncles and pedicels very short and stout. *Perianth* bright yellow, two inches long; tube funnel-shaped, longer than the oblong lobes. *Stamens* scarcely exerted beyond the perianth-lobes, inserted above the middle of the tube. *Capsule* oblong, coriaceous, half an inch long.—*J. G. Baker.*

1, Portion of raceme and flower with perianth laid open; 2, anther; 3, top of style and stigma:—*all enlarged*; 4, whole plant greatly reduced.



TAB. 4950.

AGAVE STRIATA.

Striated-leaved Agvae.

Nat. Ord. AMARYLLIDÆ.—HEXANDRIA MONOGYNIA.

Gen. Char. (Vide supra, TAB. 4934.)

AGAVE *striata*; acaulis, foliis patentibus rectiusculis numerosissimis rigido-carnosis elongatis linearibus sensim attenuatis (transverse sectis subrhombeo-ancipitibus) subglaucis superne longitudinaliter pluristriatis margine scabris apice spinescente, scapo centrali elongato foliis duplo triplove longiore bracteato bracteis patentibus, spica longissima densiflora, floribus geminatis sessilibus, bracteis e lata basi longe subulatis, capsulis subbaccatis brevi-ovatis obtuse triquetris nigris.

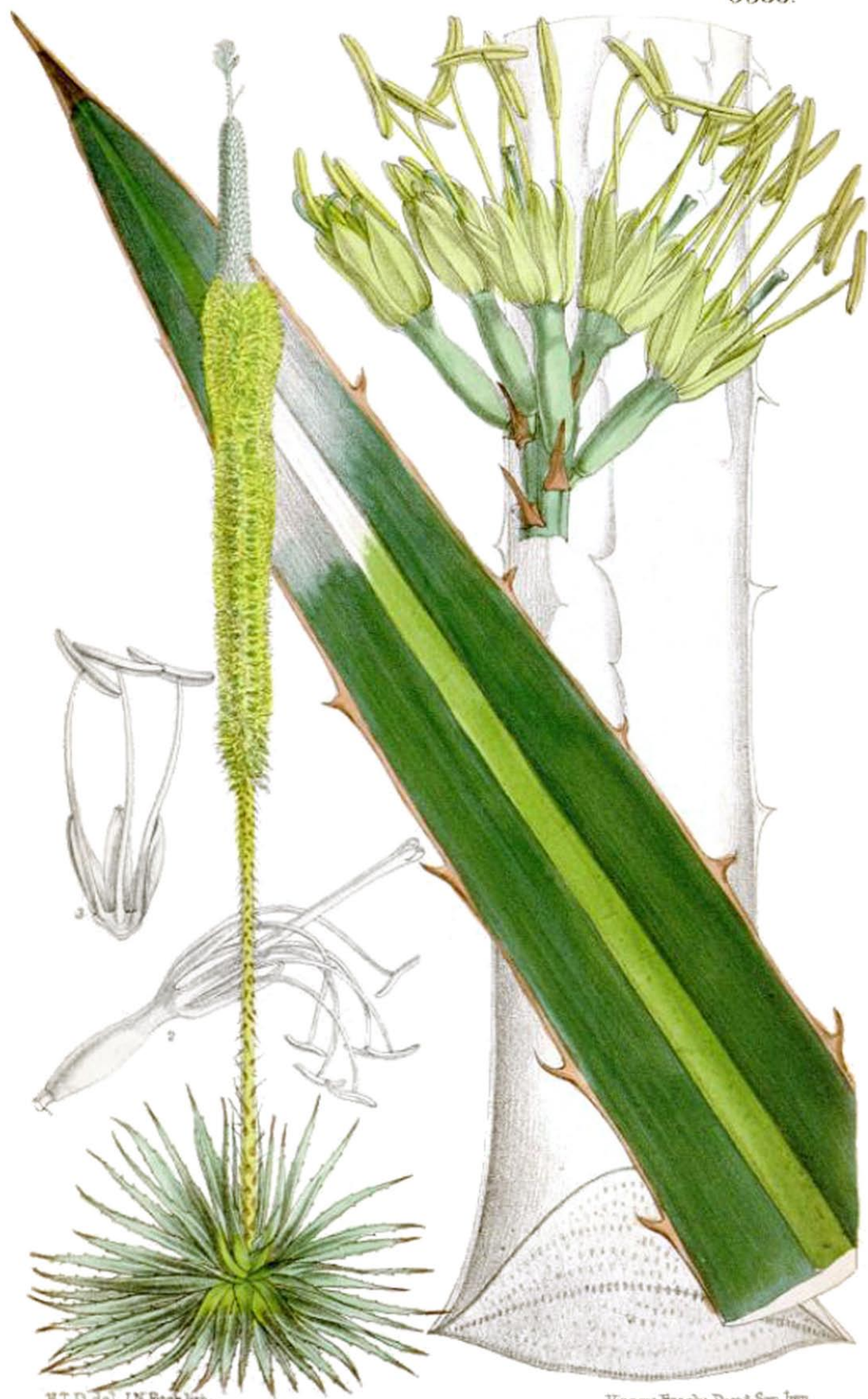
AGAVE *striata*. Zucc. in Nov. Act. Acad. Leopold. Carol. 16. 2. p. 678. Salm-Dyck, Hort. 1814. p. 307. "Roem. Am. 286."

There can be no question that this plant, which we have received from Real del Monte, Mexico, is nearly allied to *Agave geminiflora*, Gawl. (see Bot. Reg. t. 1145), but the foliage is different in the form (as best seen by a transverse section), and the two are quite distinct. Three species of this group of *Agave*, with very narrow linear but gradually attenuated leaves, are described by authors; viz. *Agave geminiflora*, Gawl. (too long known in our gardens under the false name of *Bonaparteia juncea*); *A. striata*, Zucc., which we believe to be the species here figured; and *A. recurva*, Zucc. The two last appear to be hitherto unknown in the flowering state. Of the first, *A. geminiflora*, I would observe that this is described as having the leaves filamentous at their margins, although no figure, that we have seen, gives that appearance (I have no access to "Tagliabue, in Bibliotheca Ital. i. t. 100"). Dr. Lindley describes them "marginibus per stam filamentosis." The oldest plant however, under the name of *A. geminiflora*, in our gardens, shows no appearance whatever of filaments: but, on the other hand, we have lately received a

young plant under the name of "*A. geminiflora*, filamentosa," quite remarkable for its copious filaments: so that it is probable the plant of English gardens, at least, is not the true *geminiflora*, or else the plant varies remarkably in the absence or presence of these filaments. From the two species to which I have now alluded, our plant may be recognized by the foliage alone: in them the leaves are, comparatively, soft and flaccid; there are no striæ, there is no scabrous margin, and the surface is dark green, minutely dotted with a pale, closely adherent scurf, only visible under a lens. Our *A. striata* has flowered during the present year, for the first time.

DESCR. Stemless or nearly so. *Leaves* very numerous, from a short *trunk* or *caudex*, which is entirely clothed by them, two to two and a half feet long, from a broad base, linear, very rigid, tapering gradually to the apex, which is terminated by a horny brown point, extremely pungent. In substance the leaf is thick; a transverse section gives a compressed rhomboid figure, within spongy, but full of fibre; externally the surface is glaucous-green, marked with rather closely placed, parallel lines; the margin is rough, with a very narrow cartilaginous edge, which is minutely serrated. The younger and central leaves are erect, the lowest ones recurved, the intermediate ones horizontally patent, but with a slight recurvation. *Scape* arising from the centre of the foliage, rather stout, four to six feet long, terminated by a long spike, of densely compacted *flowers*, imbricated in the bud and elongating as the flowers expand, so that the apex attains a height of ten to twelve feet from the ground. The scape, below the spike, has numerous, spreading, long, filiform or subulate scales, two to three inches long; these are flowerless *bracts*: the same, but smaller and green, subtend the flowers. These latter are in pairs, sessile; green externally, yellowish-green within. *Perianth* infundibuliform. The six segments ovate, moderately spreading. *Filaments* of the *stamen* stout, almost thrice as long as the corolla. *Anthers* large, linear, dark purple. *Ovary*, combined with the perianth, obscurely three-angled. *Style* thick, as long as the filaments. *Stigma* obscurely three-lobed, downy. *Capsule* subbaccate, short ovate, black, terminated by the withered perianth, obtusely trigonous, three-celled: *cells* with many very glossy black seeds.

Fig. 1. Entire plant, on a very reduced scale. 2. Apex of a leaf:—*nat. size*. 3. Transverse section of a leaf:—*magnified*. 4. Portion of a rachis of the spike with flowers:—*nat. size*. 5. Section of the ovary:—*magnified*.



H.T.D. del. J.N. Pritch. lith.

Vincent Brooks Day & Son, Imp.

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TAB. 6655.

AGAVE UNIVITTATA.

Native of Mexico.

Nat. Ord. AMARYLLIDACEÆ.—Suborder AGAVEÆ.

Genus AGAVE, *Linn.*; (*Kunth Enum.* vol. v. p. 818.)

AGAVE (*Littæa*) *univittata*; acaulis, foliis 50 vel ultra dense rosulatis ensiformibus rigidis 1½–2 pedalibus sordide viridibus lineâ mediana pallida vittatis apice spinâ pungente armatis marginibus continuis corneis angustis aculeis marginalibus distantibus parvis falcatis, pedunculo gracili 3–4-pedali, bracteis vacuis linearibus squarrosis, floribus in spicam elongatam cylindricam dispositis, bracteis parvis lanceolatis, pedicellis brevissimis, bracteolis minutis lanceolatis, floribus viridibus, ovario cylindrico pollicari collo constricto, perianthii tubo subnullo, segmentis oblongo-lanceolatis ovario brevioribus, staminibus segmentis 2–3-plo superantibus.

A. univittata, *Haworth in Phil. Mag.* vol. x. p. 414; *Salm-dyck Hort. Dyck.* p. 308; *Bonpland.* vol. vii. p. 92; *Kunth Enum.* vol. v. p. 835; *C. Koch in Wochenschrift*, 1860, p. 47; *Baker in Saund. Ref. Bot.* tab. 215; in *Gard. Chron.* 1877, p. 369, fig. 58.

This is one of the best-known and most distinct of the marginate Agaves. It is remarkable for its very stiff numerous narrow pungent ensiform leaves, which have a narrow horny border, with distant prickles, and invariably are marked down the centre with a narrow pale band, such as occurs casually in some other species. It has been in cultivation in this country for fifty years at least, but the flowering was not recorded till it was figured in 1870 in the *Refugium*. During the last few years I have seen it in flower, not only in our own collection, but also in those of Messrs. Peacock and Wilson Saunders. Our drawing was made from a plant that flowered at Kew in the spring of 1880.

Descr. *Leaves* fifty or more in a dense sessile rosette, ensiform, very rigid in texture, one and a half or two feet long, one and a half or two inches broad at the middle, not narrowed at all downwards, narrowed gradually upwards to the pungent brown point, quite flat on the face in the

NOVEMBER 1ST, 1882.

lower half, a quarter of an inch thick in the middle, dull dark glaucous green with a band of pale yellowish-green down the centre, furnished with a continuous narrow brown horny border, with small distant much-hooked prickles. *Peduncle* three or four feet long, furnished with copious linear barren bracts, the lower ones ascending, the upper squarrose. *Inflorescence* a cylindrical spike seven or eight feet long, four inches in diameter when the flowers are fully expanded; flowers arranged in sessile pairs subtended by a small lanceolate scariose bract; pedicels a line long, each furnished with a minute lanceolate bracteole. *Flowers* proterandrous, very pale glaucous green in bud. Ovary cylindrical, an inch long, constricted at the neck; tube scarcely any; segments oblong-lanceolate. *Stamens* inserted at the base of the perianth-segments; filaments above an inch long; anthers linear. *Style* not developed till after the anthers fade, finally an inch and a half long. —*J. G. Baker.*

Fig. 1, A small portion of the flower-spike; 2, complete flower in its final stage, with stigma developed and stamens faded; 3, half a flower, above the top of the ovary, as seen from within;—*all life size.*



AGAVE VIRGINICA. SPIKE-FLOWERED AGAVE.

Class and Order.

HEXANDRIA MONOGYNIA.

Generic Character.

Cor. (supera G.) tubulosa, infundibuliformis, limbo sexpartito. *Stam.* exserta, summæ corollæ infixæ. *Anth.* longæ versatiles. *Capsf.* utrinque attenuata, subtrigona, polysperma; feminibus planis gemino ordine dispositis. *Juss. Gen. Pl.* 51.

OBS. Caulis subnullus aut caudiciformis; folia radicalia canaliculata rigida, apice (sæpe etiam margine) spinosa, juniora, obvoluta; panicula e caudice assurgens maxima, pyramidata. *Habitus* YUCCÆ flos diversus. *Id.* l. c.

Specific Character and Synonyms

AGAVE *virginica*; (rhizoma crassum fusiformi-cylindraceum descendens, præmorsum? nec in caudicem assurgens;) foliis radicalibus, plurimis, e deorsum convolutis compactis, in orbem ambiter et recumbenter divergentibus, lanceolatis, coriaceo-crassis, rigidis, margine cartilaginea tenuissime denticulata, culpe spinæformi; scapo simplicissimo, foliolis vagis diffitis obfite; bracteis sphacelatis germini subæqualibus; floribus subseffilibus, in spicam longam eductis, remotius sparsis, ex adpresso-erectis divergentibus; stylo lobulis tribus stigmatosis emarginatis hianter patentibus terminato. G.

AGAVE *virginica*. *Linn. Sp. Pl.* 2. 1. 461. *Hort. Kew.* 1. 472. *Walt. Flor. Carol.* 121. n. 149. *Jacq. Ic. Rar.* 2., t. 378. *Coll.* 2. 261. *Michaux Fl. Bor.-Amer.* 1. 187. *Willd. Sp. Pl.* 2. 193.

ALOE foliis lanceolatis spina cartilaginea terminatis floribus alternis seffilibus. *Gron. Virg. ed.* 1. 152. *ed.* 2. 53.

DESC. *Root* perennial; *rootstock* descending, fleshy, fusiform-cylindrical, about an inch in diameter, præmorfe ? throwing out numerous

numerous thickish fibres, not elongated into a *caudex* upwards; *leaves* numerous, radical, ambient, downwards convolutely packed, upwards divergently recumbent, lanceolate, coriaceously thickened, rigid, from four to eight inches long, about two broad, with a very narrow cartilaginous finely denticulate-ciliate border, terminating in a spinous point; *scape* central, quite simple, from four to five feet high, round, beset with several small spathelike distant straggling leaflets, erect strict; *inflorescence* terminal, spiked, subflexuose, many-flowered, subseffile, rather distant, sparse, upright; *pedicles* nearly obsolete; *bractes* scariose, spacelate, about even with the germen, convolute-acuminate; *corolla* from adpressed-upright far diverging, greenish, cupped-tubular, obtusely hexagonal, alternate angles broader; *limb* fixparted, upright, scarcely diverging, but little shorter than *tube*; *segments* oblong-tapered, convolute-concave, quickly spacelate; *filaments* adnate to the tube, overtopping the corolla by nearly a third, thick filiform, somewhat compressed, equal, fasciculate, slightly divergent upwards, green, dotted with small purple spots; *anthers* large, linear-oblong, incumbent, balancing; *germen* continuous to the corolla, inferior, oval-oblong, obtusely-trigonal; *style* upright, gradually lengthening, but always shorter than stamens, thicker, obtusely triquetral as if of three concrete filiform shafts; ending in three emarginate divaricately patent *stigmatose lobes*.

Native of Carolina and Virginia, growing in grassy spots. Introduced into Kew Gardens, by Mr. JOHN CREE, in 1765. The bloom is very sweet. Varies with spotted and plain leaves. Flowers in August and September. Requires to be kept in the greenhouse. The specimen was sent us by Mr. LODDIGES, of Hackney. G.

E R R A T A

No. 1053. l. 10. pro "media" lege "extima"

No. 1055. l. 21. for "we need add no further description to the many" read "we need not add any further description to those."

No. 1149. l. 20. post "Ed." infere "2."

No. 1149. l. penult. pro "Clusii" lege "Clusii"



M. S. del. J. N. P. lith.

Vincent Brooks, Day & Son Ltd. imp.

L. Reeve & Co. London.

TAB. 8501.

AGAVE WARELLIANA.

Mexico.

AMARYLLIDACEAE. Tribe AGAVEAE.

AGAVE, *Linn.*; *Benth. et Hook. f. Gen. Plant.* vol. iii. p. 738.

Agave (Littaea) **Warelliana**, *Baker in Gard. Chron.* 1877, vol. viii. p. 264, fig. 53; species e grege *Littaeorum* perianthiis tubulosis segmentisque recurvis, maxime affinis *A. chiapensi*, Jacobi et *A. macranthae*, Tod., sed a prima differt tubo longiore, a secunda foliorum forma et aculeis minoribus.

Suffrutex. *Rosula* acaulis vel subcaulescens, parce sobolifera et post anthesin ex axillis ramosa, dense foliata, circiter 1 m. alta et 1.70 m. lata. *Folia* laete et pallide viridia, vix glaucescentia, subnitida, erecto-patentia, lanceolato-spathulata, acuminata, 70–75 cm. longa, supra medium 13–14 cm. lata, basin versus ad 9–10 cm. constricta, usque medium convexa, superne plano-concava, dorso convexa, basi carnosa circiter 6–7 cm. crasa, superne tenuiora sed satis rigida; spina terminalis 18–20 mm. longa et 3–4 mm. lata, recta, atro-brunnea, supra plana et ultra medium late canaliculata, ad margines longe decurrens; margines linea atro-brunnea vel demum grisea usque basin fere muniti aculeisque parvis vix 1 mm. longis et 2 mm. inter se distantibus rectis incurvis vel recurvatis serrulati. *Inflorescentia* circiter 5 m. alta; scapus validus adscendens 2 m. longus, viridi-brunneo-maculatus, bracteis vacuis numerosis erectis adpressis deltoideis longe acuminatis mucronatis obtectus; bracteae inferiores circiter 28 cm. et ultra, superiores 18 cm. longae; spica densissima 3 m. longa et circiter 34–35 cm. lata, bracteae magnae, circiter 15–17 cm. longae iis scapi similes, summi gradatim minores. *Flores* breviter pedicellati, 90–95 mm. longi; ovarium 4 cm. longum, utrinque attenuatum, trigonum, laeve, laete viride, subrectum; perianthii tubus decurvatus, obconicus 14–15 mm. longus, extra 6-sulcatus; segmenta late lineari-lanceolata, obtusiuscula, 35 mm. longa, intus luteola, dorso violaceo-brunneo-adsperosa, exteriora acutiora, interiora obtusiora latiora, 10–11 mm. lata, dorso late carinata; filamenta ad faucem inserta, 85 mm. longa, violaceo-brunnea, basi pallida, antherae sulphureae 32 mm. longae; stylus robustus concolor fere 14 cm. longus. *Capsula* obclavata, breviter rostrata, trigona, lignosa, 35–38 cm. longa et 18 mm. lata; semina atra, 6 mm. lata, subsemiorbiculata.—A. BERGER.

Agave Warelliana was first described by Mr. Baker from the famous collection of Mr. Wilson Saunders. It is still an uncommon, but is a very attractive plant in gardens. During the summer of 1912 it flowered at La Mortola in the garden of Lady Hanbury, and also in the garden of Professor G. Roster at Ottonella in the Island of Elba, From the plant which flowered at La Mortola was derived the material from which our figure has been prepared.

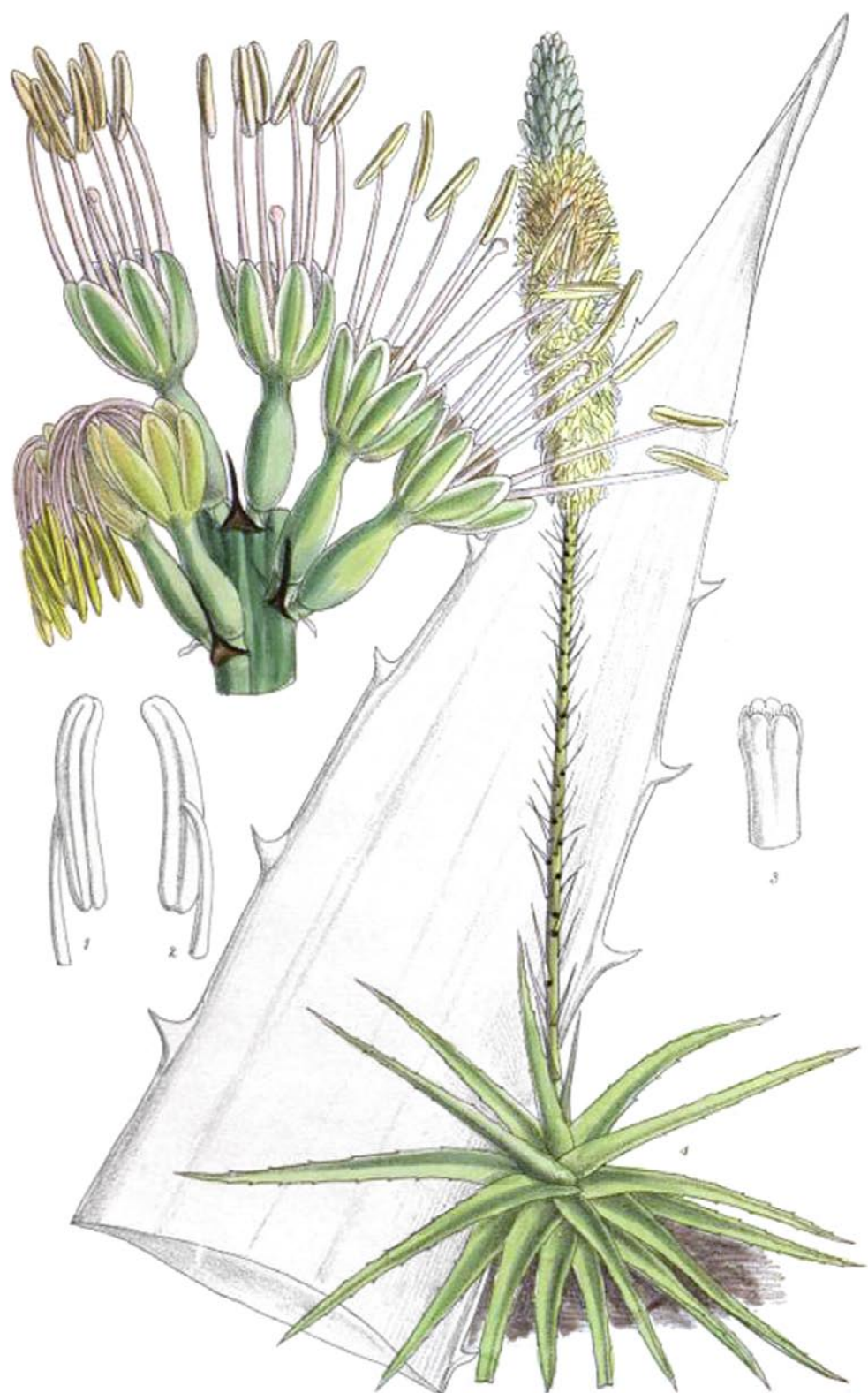
JUNE, 1918.

Among the Agaves generally included in the section *Lit-taea* on account of their cylindrical inflorescences, our species belongs to a special group the members of which have tubular flowers with recurved segments, as in *A. polyacantha*, C. Koch. Its nearest allies are *A. macrantha*, Tod. and *A. chiapensis*, Jacobi. All have rather large flowers and bracts. But in *A. chiapensis* the flowers are smaller than in *A. Warelliana* and have a shorter tube; the leaf characters also differ even more markedly. Between *A. macrantha*, Tod., and *A. Warelliana* there are relatively minor differences, especially in the shape of the leaves and their marginal teeth, so that it is not impossible that the two may be extreme forms of one rather variable species. If this view be adopted, Mr. Baker's name has priority. The *Agave* which flowered at Lyon in the Parc de la Tête-d'Or in 1869 and was described as *A. chiapensis* by Jacobi (Abhandl. Schles. Ges. Naturw. Abth. 1870, p. 164) is another form of this species and is not the same as the original *A. chiapensis* described by Jacobi in 1866 (Hamb. Gartenz. xxii. 213).

DESCRIPTION.—*Shrub. Rosette* acaulescent or very shortly caulescent, with about 75 leaves, over 3 ft. high and nearly 6 ft. broad, emitting a few suckers and, after flowering, branching from the axils. *Leaves* about 28–29 in. long and 5–5½ in. broad in the middle, lanceolate-spathulate, erecto-patent, bright pale green, almost shining, rather stiff and hard, at the base about 2½–3 in. thick, constricted to 4 in. or less, above convex or plano-convex, towards the middle and the long point a little concave, convex at the back, especially at the base; end spine $\frac{3}{4}$ – $\frac{4}{5}$ in. long and $\frac{1}{2}$ –2 lin. broad, straight, black-brown, when old ash-grey, above flat and broadly channelled to about the middle, on the margins decurrent into a narrow horny line which almost reaches the base and which is densely beset with minute teeth; teeth about $\frac{1}{2}$ lin. long and 1 lin. distant, straight or curved. *Inflorescence* over 15 ft. high. *Scape* robust, over 6 ft. high, green mottled with brown, densely covered with numerous empty bracts, all erect, deltoid and long acuminate, the lower ones about 11 in., the upper ones about 7 in. broad. *Spike* dense and many-flowered above, 9 ft. high, and when expanded about 13–14 in. broad;

bracts similar to those of the scape and rather large, about 6–7 in. long or longer, the upper ones gradually smaller; pedicels short and thick. *Flowers* about $3\frac{1}{2}$ – $3\frac{3}{4}$ in. long, with a curved tube and limb. Perianth-lobes broadly linear-lanceolate, obtuse, yellowish-green, outside mottled with brown or red, the outer ones more acute, the inner ones broader, about 5 – $5\frac{1}{2}$ lin. wide, with a deep channel above and a fleshy keel at the back; tube obconical, 7 – $7\frac{1}{2}$ lin. long, outside with six distinct furrows; stamens over 3 in. long, widely spreading, robust, violet-brown, paler at the base; anthers about $1\frac{1}{4}$ in. long. *Ovary* $1\frac{1}{2}$ in. long, somewhat triangular, smooth, green; style coloured like the stamens, at length $5\frac{1}{2}$ in. long. *Capsule* $2\frac{1}{2}$ in. long, obclavate, triquetrous; seeds black, about 3 lin. long and broad.

Fig. 1, portion of leaf-margin with teeth; 2, anther; 3, stigma; 4, sketch of an entire plant:—*all enlarged except 4, which is much reduced.*



M.S. del. J.N. Fitch. lith.

Vincent Brooks Day & Son. Lith. imp.

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TAB. 8214.

AGAVE WATSONI.

Central America?

AMARYLLIDACEAE. Tribe AGAVEAE.

AGAVE, Linn.; Benth. et Hook. f. *Gen. Plant.* vol. iii. p. 733.

Agave (§ *Littaea*) **Watsoni**, J. R. Drummond et C. H. Wright, in *Kew Bull.* 1907, p. 322; species *A. expatriatae*, J. N. Rose, maxime affinis, a qua inflorescentia brevior sed latior, foliorum pagina superiore vix concava et spinis marginalibus minoribus param uncinatis differt.

Caulis perbrevis. *Folia* 15–20 densius rosulata, laete viridia; exteriora sub anthesin patentia, anguste oblongo-lanceolata, circa 50 cm. longa, basi tumescente 8 mm. crassa ibique 9·5 cm. lata, cervice facie superiore convexa 5·5 cm. lata, inde facie superiore fere plana, versus apicem gradatim expansa medioque 7·5 cm. lata; interiora erecta, angustiora, in bracteis sensim abeuntia; omnia vitta marginali castanea tandem cinerascente ornata, marginibus aculeis circiter 5 mm. longis basi compressis vix uncinatis inter se 2 cm. remotis apiceque spina obtusiuscula 1·8 cm. longa armata. *Scapus* fere 2·5 m. altus, ad basin 3·5 cm., sub spicam floriferam 2 cm. crassus, cylindricus, bracteis imis exceptis patentibus subtiliter sulcatis albidis instructus. *Flores* viridescentes, staminibus purpurascentibus, in spicam densiorem fere 10 cm. latam aggregati. *Bracteae* inter alabastra inconspicuae, vix 1 cm. longae, supra basin abrupte constrictae, conduplicatae, in setas firmas subulatas scariosas abeuntes. *Ovarium* inferum 13–14 mm. longum, 5 mm. latum, subtriquetrum. *Perianthii tubus* supra ovarium abrupte constrictus, manifeste 6-sulcatus; *lobi* ovario aequilongi, subcarnosi, viridescentes, marginibus albedo-pellucidi. *Stylus* robustior, 3·5 cm. longus, albedo-pellucidus, purpurascens; stigma papillosum.

The *Agave* here figured flowered at Kew in the spring of 1907. As regards inflorescence it is nearest to *A. densiflora*, Hook. (B. M. t. 5006), which has also somewhat the same type of leaf, but with different, far more closely set margin-prickles; the apple-green leaf, with an almost convex neck, and flat upper surface of the blade, resembling that of *A. (Euagave) decipiens*, Baker, should serve to distinguish *A. Watsoni* from all known *Littaeae*, not excluding *A. expatriata*, Rose, which is only known to us from the author's photograph and description.

DESCRIPTION.—*Stem* very short. *Leaves* apple-green, 15–20 in a moderately dense rosette, the outer, at the time
SEPTEMBER, 1908.

of flowering, spreading, narrowly oblong-lanceolate, about 20 in. long, dilated base over $\frac{1}{2}$ in. thick, and $3\frac{3}{4}$ in. broad, neck about $2\frac{1}{4}$ in. broad, convex on its upper surface, greatest width of leaf, at about 9 in. from the base, about 3 in., upper surface almost flat upwards, except just below the tip, which bears a rather blunt, finely grooved spine, less than $\frac{3}{4}$ in. long; margins with an extremely narrow ribbon, brown when young, ashen grey with age, armed at intervals of about $\frac{3}{4}$ in. with prickles under $\frac{1}{4}$ in. long, compressed at their bases, narrowly triangular in outline, tips not obviously hooked. *Flowering stem* not quite 9 ft. high, diameter $1\frac{1}{3}$ in. at the base, less than an inch just below the spike of greenish flowers, with purplish filaments and anthers, which before withering give the spike a diameter of a little less than four inches. *Bracts* suddenly narrowed above their bases and folded into a firm, awl-shaped scarios bristle, whitish and conspicuous on the scape, but hidden by the buds and blossoms. *Ovary* rather more than $\frac{1}{2}$ in. long by $\frac{1}{5}$ in. broad; tube sharply constricted, plainly six-furrowed. *Perianth-lobes* about the same length as the germen, rather fleshy, green with white translucent edges; style robust, suffused with purple; stigma papillose.—J. R. DRUMMOND.

CULTIVATION.—*Agave Watsoni* was purchased in 1906 from Mr. Justus Corderoy, Blewbury, Didcot, who obtained it originally from the Ghiesbreght Collection as an unnamed species. It flowered at Kew in 1907 under the usual conditions of cultivation. Unless there are other plants of it elsewhere it is likely to be lost to cultivation, as it has produced neither seeds nor offsets.—W. WATSON.

Figs. 1 and 2, anther; 3, style apex; 4, whole plant:—1–3 *enlarged*, 4 *reduced*.



M.S. del. J.N. Pichler.

Vincenz. Brooks, Day & Son. Lith.

L. Reeve & Co. London.

Tab. 8271.

AGAVE WRIGHTII.

Central America.

AMARYLLIDACEAE Tribe AGAVEAE

AGAVE, *Linn.*; *Benth. et Hook. f. Gen. Plant.* vol. iii. p. 788.

Agave (*Littaea*) **Wrightii**, J. R. Drumm.; species e grege *A. geminiflorae*, Scannag., a qua follis subulatis nec super basem linearibus augustoque loratis et laevigatis nec sulcato atriatie, perigoniique lobis haud purpureiscentibus conspicue differt; *A. angustissimae*, Engelm., et *A. Knightianae*, J. R. Drumm., maxime affinis; ab illa ob foliorum basem in pulvinum valde incrassatum, partem vero apicalem ad marginem utramque canaliculatam et antheras aureas nec purpureas distinguenda; a hac filamentis haud coloratis, foliorumque basi latiore magis bibboso recedit.

Truncus perbrevis, foliis numerosis modice congestis rosulatim dispositis vestitus. *Folia* carnosio-coriacea, subulata, 40–45 cm. longa, basi primum tenui lateraliter dilatato mox antice gibboso, postice leviter excavato, ultimum in pulvinum obliquum expanso, ad 3 cm. ultra imam basem in column contracta, dein ad apicem argutissimum in spinam vix 1 cm. longam abeuntem attenuata; ima basi 3·5 cm, pulvini medio fere 4 cm., collo 2·25 cm., laminae verae medio vix 0·5 cm. lata; pulvini medio 2·5 cm., collo 1·5 cm., laminae verae medio vix 2 mm. crassa; facie anteriora subcarinate convexa, obtuse et irregulariter pauci-sulcata. facie posteriore primum carinate convexa mox propter laminae margines plus minusve involutas mediumque simulae obtuse costatum versus marginem utramque canaliculata; utrinque laevigata, laete viridia sed maculis minutia albidis numerosis notata; ipsis marginibus subcorneis subfulvidis primum integris per aetatem in filamentis paucis remotioribus dilacerata. *Scapus* ad 3 m. altus, pedunculo 1. m. longo bracteis subscariosis tune acicularibus 6–9 cm. longis instructo. *Flores* geminati in spicam 2 m. longam digesti; pedicelli doliiformis, perbreves. *Perigonii* lobi margine pallide lactei, ceterum viridescentes, ultra 1·5 cm. longi, 6 mm. lati, medio subcarinati; perigonii tubus 1·25 cm. longus, inferne parum constrictus ibique 0·25 cm. latus. *Stamina* fere recta, 6 cm. longa, filamentis albidis, antheris luteis basi demum 2-fidis. *Ovarium* 1·25 cm. longum; stylus 6 cm. longus.—J. R. DRUMMOND.

The subject of our plate is a member of the *Littaea* section of *Agave* and is allied to *A. geminiflora*, Scannag. (*Littaea geminiflora*, Tagliabue), the species on which the genus *Littaea* Was originally based. The plant now figured was acquired for Kew from the collection of Mr. T. H. Kellock in 1903 under the name *A. Taylori*. That it is not the true *A. Taylori*, Hort. Williams (Gard. Chron. 1874, vol. i. p. 418)—which is stated (Gard. Chron. 1877, vol. viii. p. 621, AUGUST, 1900.

fig. 125, and Baker, Handb. Amaryllid. p. 186) to be a garden hybrid whereof *A. geminiflora* is one parent and *A. filamentosa* is probably the other—was at once recognised, and our plant was therefore tentatively treated as possibly a variant of *A. geminiflora* until it flowered in the Mexican House at Kew in November, 1908. Mr. C. H. Wright, by whom the plant was then examined, found it to differ from *A. geminiflora* in the colour of its flowers as well as in its leaves, which are smooth and subulate in place of being narrowly loriform and striate. It appeared to Mr. Wright that its nearest ally is *A. angustissima*, Engelm., first named, but not then fully characterised (Trans. St. Louis Acad. Sc. vol. iii. p. 306) in 1876, but that it is specifically distinct from Engelmann's plant. A comparison with specimens to which Dr. Trelease has attached the name *A. angustissima*, and a study of the figure and description of that species supplied by Dr. J. N. Rose (Garden and Forest, vol. iii. pp. 5 and 6) in 1893 have satisfied Mr. Drummond that Mr. Wright's conclusions are justified. Though allied to *A. angustissima*, *A. Wrightii* differs from that plant by the shorter, less constricted perianth-tube, by the yellow in place of purple anthers, by the less flattened leaf-blade which has the upper face channelled inside either margin, by the broader leaf-neck and by the much wider and much more abruptly shouldered leaf-base. As regards floral structure, Mr. Drummond points out that *A. Wrightii* approaches most closely to the plant figured as *A. geminiflora* (Bot. Reg. t. 1145) in 1828; from that plant *A. Wrightii* is readily distinguished by its much wider and more gibbous leaf-base; but, except in having white in place of coloured filaments, hardly differs as regards flowers. The plant thus depicted by Lindley is not, however, *A. geminiflora*, Scannag., and to distinguish it Mr. Drummond suggests the employment of the name *A. Knightiana*. It may be added that this species has remained not only unnamed, but undescribed, for the description associated with it in the Botanical Register has not been based on, and does not apply to, the plant there figured, but has been taken, unmodified, from the reprint in the second volume of the Journal of Science (1817) of the original account of *Littaea geminiflora* published by Tagliabue (Bibl. Ital. vol. i. p. 9) in 1816.

DESCRIPTION.—*Trunk* short, hidden by the rather close rosette. *Leaves* between fleshy and leathery, somewhat flexible, more or less erect when young, at length drooping, 16–18 in. long, tapering evenly to a fine point tipped with a short stoutish spine, from a gibbous base $1\frac{1}{6}$ in. wide at its origin, $1\frac{1}{3}$ in. wide at the shoulder whence it is gradually rounded to the unconstricted neck, nearly 1 in. thick; lower surface uniformly triangular-convex, bluntly keeled with a few irregular blunt creases; upper surface for about $4\frac{1}{2}$ in. above the neck depressed-convex with a blunt somewhat obliquely placed keel, above shallowly channelled with a rounded ultimately obsolete central ridge; smooth and dull apple-green flecked with minute white spots on both surfaces; margins sharp without teeth or prickles, but with a fine horny border ultimately shredding into hair-like whitish filaments. *Scape* about 10 ft. high, peduncular portion about 3 ft. long, with involute acicular more or less scarious bracts about $2\frac{3}{4}$ in. long gradually diminishing from the base upwards. *Flowers* in pairs arranged in a rather dense spike about 7 ft. long, on very short barrel-shaped pedicels, bracteolate. *Perianth* lobes about 8 lin. long, 3 lin. wide, revolute, dark green with creamy-white borders; tube 5–6 lin. long, little constricted. *Stamens* subulate; filaments almost colourless, nearly $2\frac{1}{2}$ in. long; anthers bright yellow, their cells at length free at the base. *Ovary* cylindric, 5–6 lin. long; style $2\frac{1}{4}$ in. long.

Figs. 1 and 2, anthers; 3, apex of style, and stigma; 4, sketch of entire plant, showing habit:—1–3 *enlarged*, 4 *much reduced*.



TAB. 5660.

AGAVE XYLONACANTHA.

Woody-thorned Agave.

Nat. Ord. AMARYLLIDÆ.—HEXANDRIA MONOGYNIA.

Gen. Char. (Vide supra, TAB. 5333.)

AGAVE *xylonacantha*; acaulis, foliis subsquarroso-patentibus ensiformibus acuminatis apice subtrigono pungente glaucis granulatis supra planiusculis subtus convexis ecarinatis estriatis, margine cartilagineo albo aculeis dilatatis simplicibus v. furcatis instructo, scapo elato bracteis longe setaceis numerosis instructo, racemo densifloro, pedunculis pedicellisque brevibus, bracteolis subulatis, perianthii tubo brevissimo lobis oblongis obtusis erectis viridibus ovario cylindrico æquilongis. *C. Koch, Wochenschr.* 1861, p. 39.

AGAVE *xylonacantha*. *Salm-Dyck, in Bonplandia*, v. 7. p. 92. *Jacobi in Otto, Hamburg. Garten- und Blumen-Zeitung*, v. 20. p. 547.

The 'Botanical Magazine' seems especially adapted for the publication of that noble class of plants that few can afford to cultivate, and which seldom flower in cultivation, but which are of equal interest to the scientific botanist and to the horticulturist. Amongst these the Aloes and Agaves hold, after the Palms, the place of honour, and their value for decorative purposes is becoming yearly more apparent.

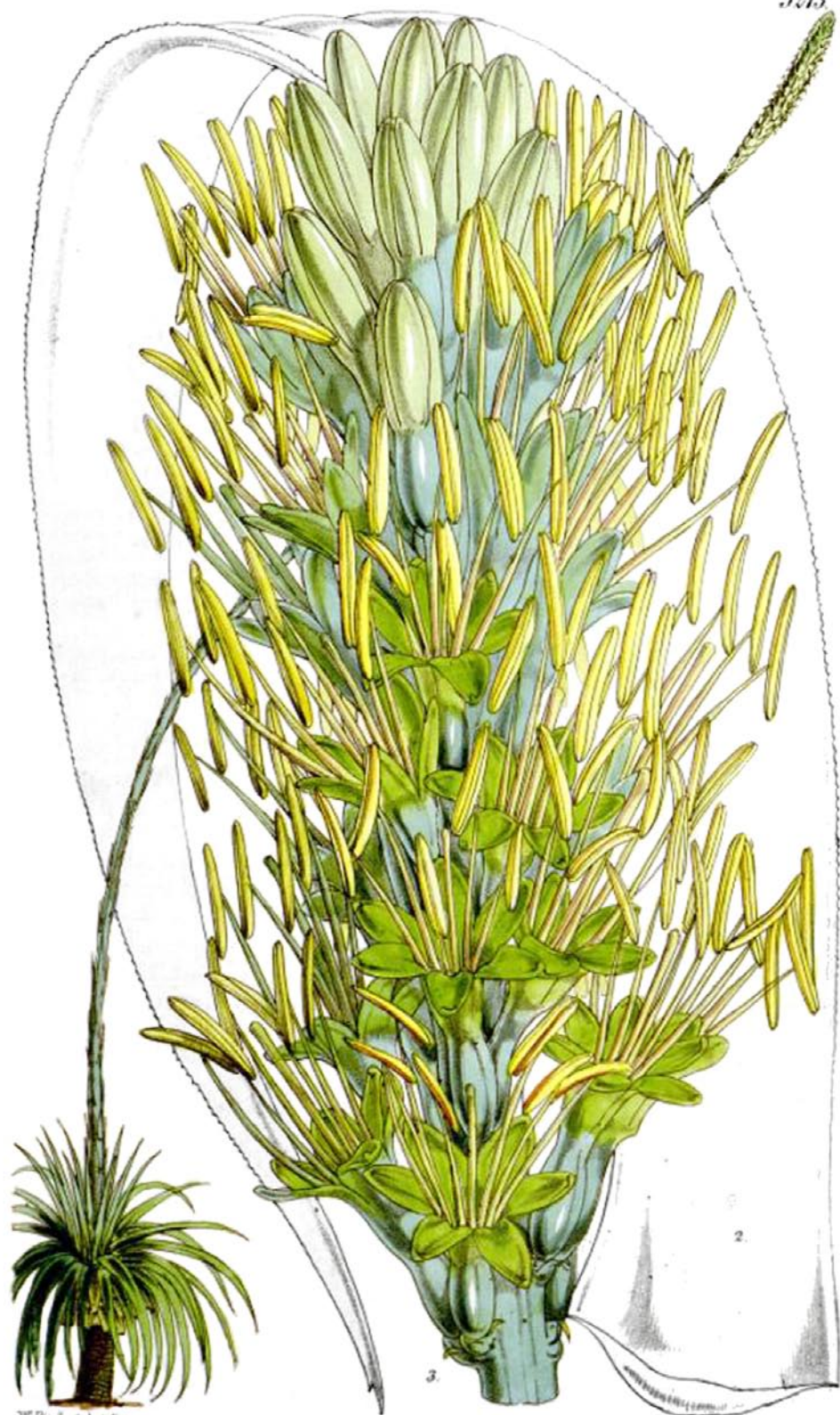
The subject of the present Plate is a native of Real del Monte, Mexico, whence it was sent to the Royal Gardens in 1846, by Mr. Repper, to whom the Gardens are indebted for many fine plants.

DESCR. Stemless. *Leaves* spreading all round, two to three feet long, three to five inches broad, thick, rigid, and succulent, rough with minute granulations, but neither keeled, striated, nor ribbed, plane above, convex beneath, glaucous-green, ensiform-lanceolate, gradually acuminate to the pungent trigonous apex; margin broad white, cartilaginous, beset with flat-lobed, white, vertically compressed, simple or lobed spinous processes, the lobes irregular, often uncinatè. *Scape*

AUGUST 1ST, 1807.

nine to ten feet high, strict, rather stout, green, beset with long, strict, subulate bracts, two to eight inches long. *Flowers* in a very dense, elongate, strict, erect raceme, three to four feet long, clustered in twos and threes on short, stout peduncles, that are subtended by a reflexed subulate bract one and a half to two inches long; each flower, with the stamens, three inches long; pedicels very short; bracteoles minute, subulate. *Ovary* cylindric, one inch long, glabrous, green. *Perianth* tube very short; lobes linear-oblong, obtuse, erect, about as long as the ovary, green. *Stamens* as long as the ovary and perianth, erect. *Filaments* yellow with a red tinge, strict. *Anthers* yellow, linear, two-thirds of an inch long. *Style* slender, shorter than the stamens; *stigma* small, capitate.—*J. D. H.*

Fig. 1. Reduced figure of the whole plant. 2 and 3. Portions of the leaf.
4. Ditto of the raceme:—*both of nat. size.*



W. P. Fitch, del. et lith.

Vincent. Brooks, imp.

TAB. 5213.

AGAVE YUCCÆFOLIA.

Yucca-leaved Agave.

Nat. Ord. AMARYLLIDACEÆ.—HEXANDRIA MONOGYNIA.

Gen. Char. (Vide supra, TAB. 4934.)

AGAVE *yuccæfolia*; trunco erecto brevi, foliis glaucis coriaceo-carnosis lorato-atenuatis supra canaliculato-concavis subtus obtuse carinatis marginibus cartilagineo-serrulatis, exterioribus recurvis, scapo longissimo (20-pedali) bracteato, spica terminali solitaria cylindrica multiflora, perianthio viridi, tubo medio contracto, limbi lobis patentissimis, staminibus corolla duplo longioribus.

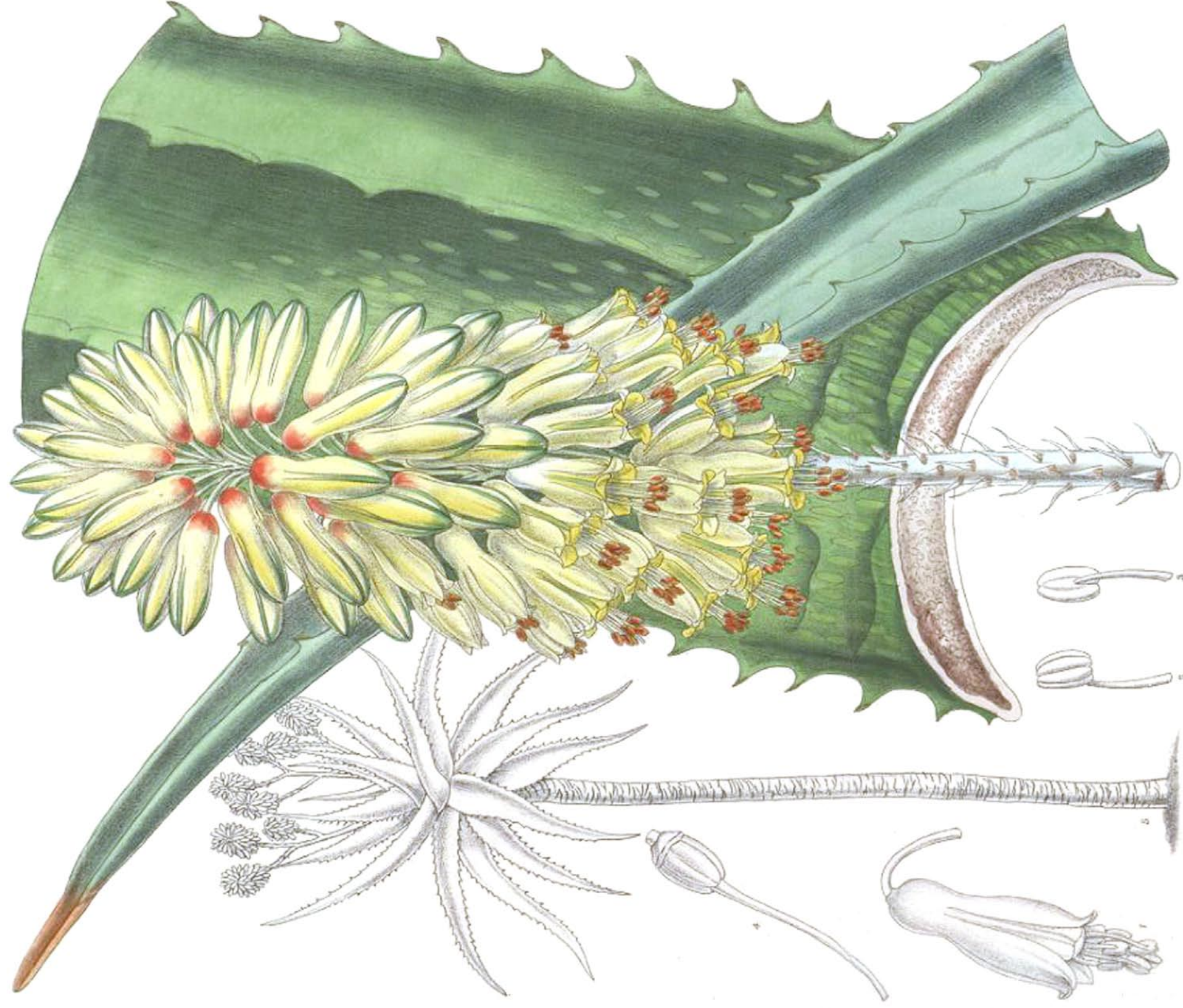
AGAVE *yuccæfolia*. *Red. Pl. Liliac. v. 6. p. 328. t. 328 et 329. Haw. Suppl. p. 41. Willd. Enum. Suppl. p. 19. Schult. Syst. Veget. v. 7. p. 725. Kth Enum. Pl. v. 5. p. 830.*

This very distinct species of *Agave*, long cultivated in the Royal Gardens of Kew, but whose native country is hitherto unrecorded, was received by us from the Rio del Monte district, Mexico, and is remarkable for the great length of the flower-stem or scape in proportion to the rest of the plant,—so tall, that long before the flowers began to expand, we were obliged to remove the plant from a greenhouse fifteen feet high to a loftier building, and support the continually elongating scape against the wall. The flowers did not expand till this had attained a height of twenty feet. The distance of the flowers from the spectator renders them inconspicuous; but when more closely inspected, they are by no means insignificantly small, of a bright yellow-green, with much exserted yellow large stamens, whose filaments and anthers are partially tinged with red. Its flowers are produced in a cool greenhouse, in the summer months.

DESCR. *Stem* or *caudex* in our plant short, erect, about two to three inches thick, scarred with the persistent bases of fallen foliage. *Leaves* numerous, outer and older ones curved, inner and younger ones more erect, one to one and a half foot long, nearly two inches wide in the broadest part, lorato-acuminate, coriaceo-carnose, glaucous, canaliculato-concave above, very ob-

tusely keeled beneath, the margin cartilaginous and minutely denticulate; *scape* rising from the centre of the foliage, gradually elongating till it has attained a height of twenty feet, one and a half or two inches diameter, erect, but not strict, clothed all the way with subulate, leafy *scales*, the lowest ones passing gradually into leaves. *Spike* cylindrical, terminal, oblong, simple, six to eight inches long. *Flowers* often two together, numerous, erect, subtended by small bracts. *Perianth* about an inch long, infundibuliform, green: the *tube* a little contracted above the ovary; *limb* of six, spreading, oval, obtuse segments. *Stamens* inserted some way down the tube, yellow, tinged with red: *filaments* twice as long as the perianth, stout, erect; *anthers* large, versatile.

Fig. 1. Much reduced flowering-plant. 2. Portion of a leaf. 3. A flowering spike:—*nat. size*.



TAB. 7712.

ALOE ABYSSINICA.

Native of Abyssinia.

Nat. Ord. LILIACEÆ.—Tribe ALOINEÆ.

Genus ALOE, Linn.; (*Benth. & Hook. f. Gen. Plant.* vol. iii. p. 776.)

ALOE (Eualoe) *abyssinica*; caudice simplici 6 ped. alto ad 3 poll. diam. leviter cicatricato, foliis ad 20 apice caulis rosulatis quaquaversis 2–3 ped. longis ensiformibus sensim in apicem pollicarem cylindraceum obtusum attenuatis concavis basi 4–5 pol. latis crasitie $\frac{1}{2}$ poll. medio ad 3 poll. latis læte viridibus supra basin versus maculatis, dentibus marginalibus ad $\frac{2}{3}$ poll. distantibus majusculis deltoideis incurvis viridibus apicibus corneis brunnis, pedunculo foliis brevioris ramoso, ramis erectis bracteis $\frac{1}{4}$ poll. longis subulatis membranaceis onustis racemis ad 6 poll. longis 3–4 poll. diam. oblongis densifloris, bracteis floralibus rameis consimilibus, floribus pollicaribus nutantibus, pedicellis $\frac{1}{2}$ –1 poll. longis, perianthio anguste campanulato supra tabum integrum leviter constricto primulino (alabastro viridi infra medium cinnabarino), segmentis tubo dupleo longioribus oblongo-lanceolatis apicibus intus aureis recurvis, genitalibus exsertis, antheris breviter oblongis ochraceis.

- A. *abyssinica*, Lam. *Encycl.* vol. i. p. 86 (*excl. syn.*). Roem. & Sch. *8yst.* vol. vii. p. 695. Salm-Dyck, *Aloe*, sect. xviii. fig. 1. Kunth, *Enum. Pl.* vol. iv. p. 521. ?A. Rich. *Tent. Fl. Abyss.* vol. ii. p. 324. Baker in *Journ. Linn. Soc.* vol. xviii. (1881) p. 174; in *Fl. Trop. Afr.* vol. vii. p. 467. *Engl. Hochgebirgsfl. Trop. Afr.* p. 161. Schweinf. in *Bull. Herb. Boiss.* vol. ii. app. II. pp. 66, 110.
- A. *vulgaris*, var. *abyssinica*, DC. *Pl. Grasses*, sub t. 27; *Poir Encycl. Suppl.* vol. i. p. 294.
-

Aloe abyssinica is a plant of historic interest, having been brought to Europe by the celebrated Bruce, on his return from Abyssinia in 1771, and was no doubt presented by him to Louis XV. of France, for it was first described by Lamarck in 1783, from a specimen in the Jardin du Roi, given by that traveller. According to Baker, in the “Flora of Tropical Africa,” it has a wide geographical range in N.E. tropical Africa, at elevations of three thousand two hundred to nine thousand four hundred feet, between Suakin and Berber in Nubia, to Erytrea and Abyssinia. In the same and in other works the stem is described as short, but in the plant here figured it is fully six feet high. The *A. abyssinica* of A. Richard, in his “Tentamen Floræ Abyssinicæ,” is cited under it by most authors, but as the
MAY 1ST, 1900.

perianth is described in that work as sexfid at the apex only, I have queried that citation.

There is no record of the source whence the specimen now in the Succulent House in the Royal Gardens, Kew, was procured. It has been there for many years, together with var. *Peacockii*, Baker (*A. elegans*, Todaro, Hort. Bot. Panorm. vol. ii. p. 25, t. 29), of which the leaves are eighteen to twenty-one inches long, and five to six broad near the base, and the flowers bright yellow; its stem is more slender, five feet high.

Descr.—*Stem* (of the specimen figured) six feet high, three inches in diameter, cylindric, faintly marked with transverse scars. *Leaves* about twenty, rosulate at the top of the stem, erect, spreading, or deflexed, two to three feet long, ensiform, gradually narrowed into a cylindric obtuse brown tip, nearly an inch long, four to five inches broad at the base, with the thickness of about half an inch, bright green, with oblong, pale, narrow blotches on the upper surface towards the base; marginal teeth about two-thirds of an inch apart, deltoid, incurved, green, tips cartilaginous, brown. *Peduncles* two or more, rather shorter than the leaves, erect, branched; branches loosely covered with subulate, pale, membranous bracts about a fourth of an inch long. *Raceme* up to six inches long, and three in diameter, very dense-fld., cylindric, bracts like those on the peduncle, but rather longer; pedicels longer than the bracts, erect, arching at the tip. *Flowers* pendulous, about an inch long, narrowly campanulate, slightly constricted above the short, entire tube, pale yellow (buds cinnabar-red below the middle, greenish-yellow above it); segments twice as long as the tube, narrowly oblong; tips recurved, golden-yellow within. *Stamens* and style exserted; anthers ochraceous, shortly oblong.—*J. D. H.*

Fig. 1, flower; 2 and 3, stamens; 4, pitil:—*All enlarged.*



M.S. del J.N. Fitch Lith.

Vincent Brooks Day & Son Imp.

TAB. 6620.

ALOE ABYSSINICA, VAR. **PEACOCKII**

Native of Abyssinia.

Nat. Ord. LILIACEÆ.—Tribe ALOINEÆ.

Genus ALOE, Linn.; (*Baker in Journ. Linn. Soc.* vol. xviii. p. 152.)

ALOE *abyssinica* var. *Peacockii*; acaulis, foliis 20–30 lanceolatis sesquipedalibus e basi 5–6 poll. lato ad apicem sensim angustatis pallide sordide glaucoviridibus margine dentibus parvis crebris deltoideis corneis rubro-brunneis patulis armatis, pedunculo valde compresso semipedali, panícula ramis 6–8 elongatis ascendentibus, racemis densis oblongis, pedicellis 6–9 lin. longis, bracteis lanceolatis pedicellis paulo brevioribus, perianthii citrini cylindrici pollicaris segmentis lanceolatis tubo oblongo duplo longioribus, genitalibus perianthio subaquilongis, antheris parvis luteis oblongo-globosis.

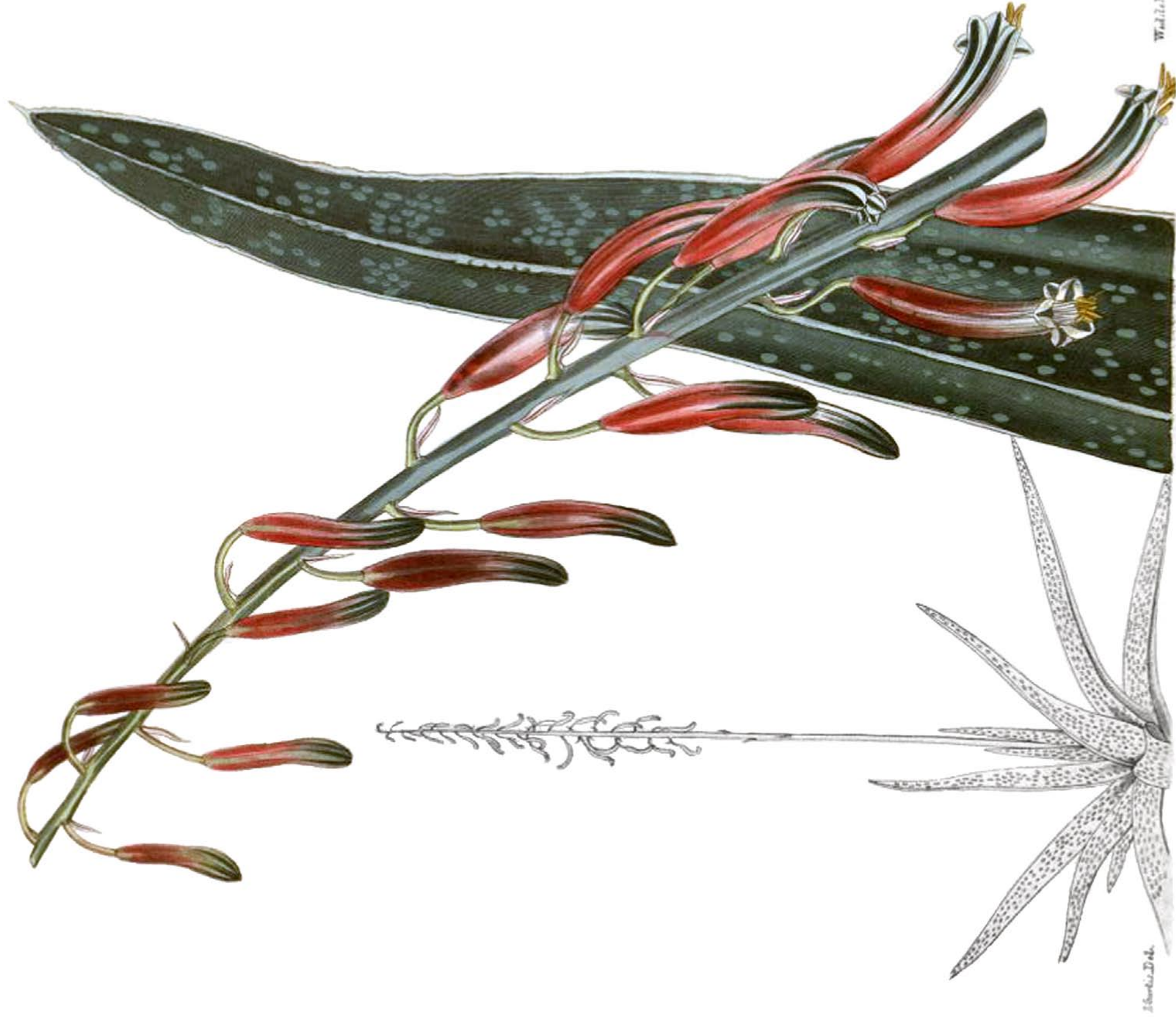
A. *abyssinica* var. *Peacockii*, *Baker in Journ. Linn. Soc.* vol. xviii. p. 175.

Probably this fine Aloe will prove to be distinct specifically from the original type of *abyssinica*, as figured in Prince Salmdyck's monograph of the genus (Sect. xviii., fig. 1); but as we have as yet only had a single plant of it, we prefer for the present to regard it as not more than a variety. It was contained in the fine collection of living plants lent lately to the Royal Gardens by J. T. Peacock, Esq., of Hammersmith, and flowered whilst in our charge in February, 1881, when the present drawing was made. Although a stout well-developed plant, it had no produced stem to the rosette, and the leaves are much broader than in typical *abyssinica*, of a very pale dull glaucous tinge and without any spots, and the tube of the perianth is half as long as the segments. The plant lately figured and described by Professor Todaro (Hort. Bot. Panorm., vol. i., p. 81, tab. 21) under the name of *Aloe percrassa* has similar leaves, in combination with a perianth in shape very like that of typical *abyssinica*, but cinnabar-red instead of yellow.

DESCR. *Leaves* twenty or thirty in a dense sessile rosette, APRIL 1ST, 1882.

lanceolate, a foot and a half long, five or six inches broad near the base, narrowed gradually to the pungent point, the colour a pale dull glaucous-green without any spots, the centre half an inch in thickness, the margins with close spreading deltoid spines with horny reddish-brown tips. *Inflorescence* as long as the leaves, a panicle with six or eight ascending branches; peduncle much flattened, glaucous, half a foot long; racemes oblong, dense, three or four inches long; pedicels about half an inch long, articulated at the tip; bracts lanceolate, rather shorter than the pedicels. *Perianth* lemon-yellow, cylindrical, an inch long; tube oblong, half as long as the lanceolate segments. *Stamens* finally reaching to the tip of the perianth-segments, or a little exserted; anthers minute, round-oblong; pollen yellow. *Ovary* oblong, yellow; style straight, reaching finally to the tip of the perianth-segments.—*J. G. Baker.*

Fig. 1, A flower cut open 2, anthers; 3, pistil; 4, horizontal section of ovary:—*all more or less enlarged.*



ALOE ACINACIFOLIA. GREAT SCYMITAR-
LEAVED ALÖE.

Class and Order.

HEXANDRIA MONOGYNIA.

Generic Character.

Cor. erecta, ore patulo, fundo nectarifero. *Filamenta* receptaculo inserta.

Specific Character and Synonyms.

ALÖE *acinacifolia*; acaulis, foliis distichis acinaciformibus, angulis cartilagineis aculeatis, floribus racemosis pendulis. *Jacq. Eclog. t.* 31.

ALÖE *acinacifolia*; foliis erecto-patulis, latiusculis, spirali-ter distichis, inequaliter triquetris, acinaciformibus, superne concaviusculis, subtus convexis, apice acutis; atroviridibus, albido-serialiter-maculatis glaberrimis, nitidis; margine interrupte cartilagineis, basi integerimis, apice denticulatis. *Pr. de Salm. Dyck. Cat. Rais.* 23.

GASTERIA *acinacifolia*. *Haworth Suppl. Pl. Succul. p.* 49.

The genus ALÖE has by some botanists been separated into four genera, viz. ALÖE, GASTERIA, HAWORTHIA, and API-CRA; but as this separation has not been adopted in the Hortus Kewensis, and we have not studied the subject sufficiently to judge of its accuracy, we prefer preserving the original genus; although the great difference in the habit of many of the species, renders it very probable that such a division may be made with propriety and advantage.

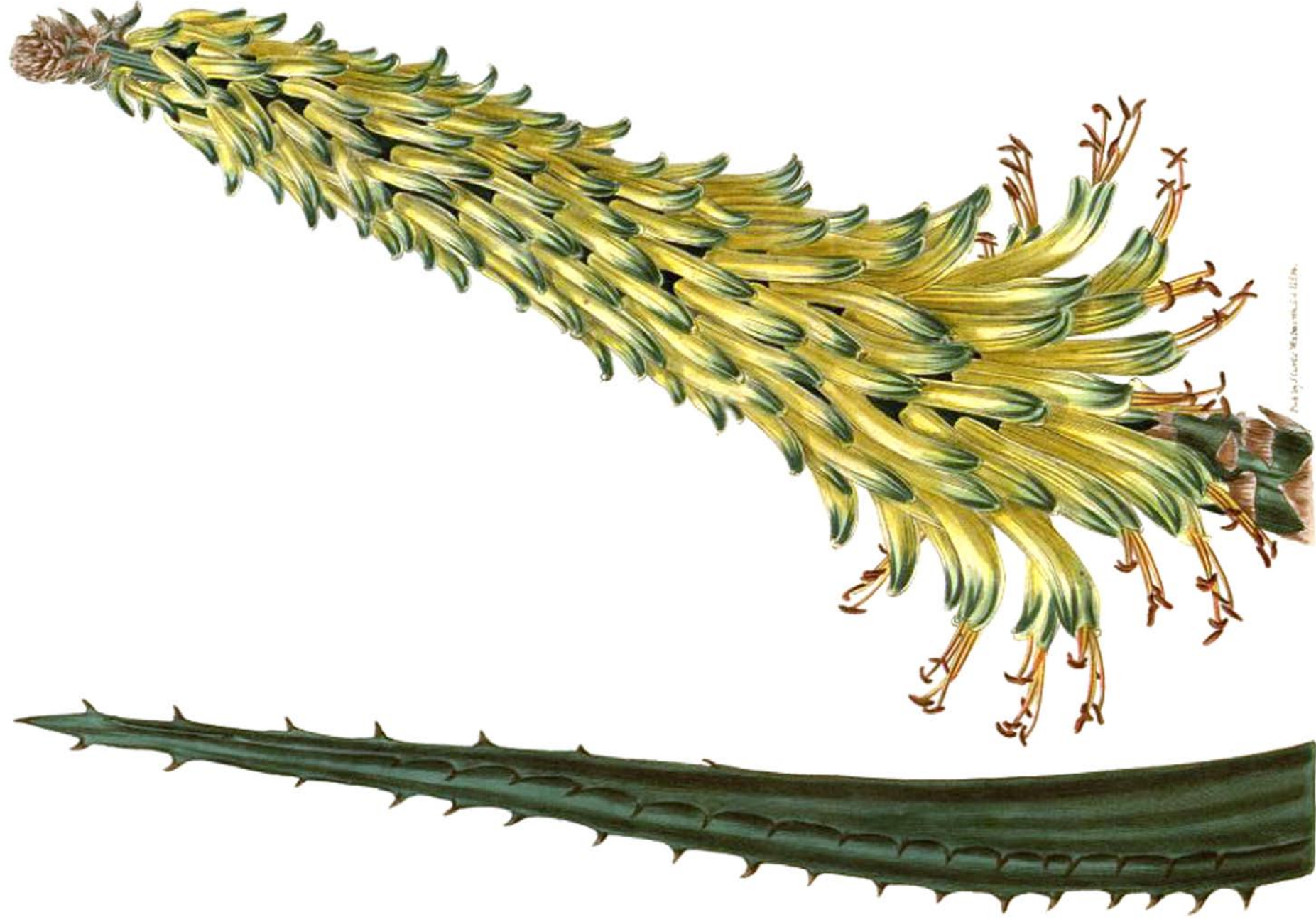
The present species belongs to GASTERIA of DUVAL and HAWORTH, to the section *curvifloræ* of the PRINCE DE SALM DYCK, and to the second section of ALÖE in the Hortus Kewensis (*corollis curvatis basi ventricosis*).

Our

Our drawing was taken, in July 1821, from a plant perhaps the only one that, has flowered in England, in the collection of Mr. Hitchin, in Norwich. The leaves were nearly two feet long, the scape three feet and a half, two feet of the upper part of which were covered with the pendulous flower an inch and a half long curved, ventricose a little above the base.

Native of the Cape of Good Hope. Requires to be kept in the greenhouse or dry-stove in the Winter months

The outline figure is a diminished representation of the whole plant; the coloured figures of a part of the raceme of flowers, and the superior portion of a leaf.



ALOE AFRICANA, β . ANGUSTIOR. NARROWER
SWORD-LEAVED ALOE.

Class and Order.

HEXANDRIA MONOGYNIA.

Generic Character.

Corolla erecta, ore patulo, fundo nectarifero. *Filam.* receptaculo inserta.

Specific Character and Synonyms.

ALOE *africana*; fruticosa, foliis ensiformibus glaucis amplexicaulibus, spica terminali longissima, floribus pendulis imbricatis, staminibus exsertis.

ALOE *africana*; foliis ensiformibus glaucis; inferioribus distantibus; apicibus reflexis, dentibus marginalibus igneis. *Haworth in Lin. Soc. Trans.* 7. p. 21.—*Syn. Pl. Succ.* p. 76. *Hort. Kew. ed. alt.* 2. p. 296.

ALOE *perfoliata*, β . *africana*; foliis latioribus amplexicaulibus margine et dorso spinosis, florus spicatis, caule fruticoso. *Hort. Kew. ed. I^{ma}.* I. p. 466. *Mill. Dict. Willd. Sp. Pl.* 2. p. 185.

(β .) *latifolia*; foliis erecto-patulis superne parum recurvis. *Haworth Suppl. Pl. Succ.* p. 47.

(α .) *angustior*; foliis patenti-recurvantibus, fere duplo angustioribus quam in var. α . *Id. l. c.*

DESCR. At the time Mr. HAWORTH published his elaborate arrangement of the genus ALOE in the Seventh Volume of the Transactions of the Linnean Society, he had never seen the flowers of this species, which it rarely has been known to produce till it has acquired a very considerable size; the figures of it which have been hitherto published, have, in consequence, represented the form of the plant only, without

without any flower, such as those quoted with doubt by Mr. HAWORTH, from COMMELIN, and those in WEINMAN'S *Phytographia*, which are therefore not quoted above.

ALOE africana grows with an upright stout *stem*, marked with the vestiges of fallen leaves. *Leaves* alternate, stem-embracing, most crowded at the upper part, more or less recurved, sword-shaped, concave on the upper surface, armed at the margins, with conical rigid teeth or spines, which are of a red-orange colour at their points, some of the leaves have also a few similar spines on the under side towards their extremities; when cut, a watery moderately bitter juice exudes. From the extremity of the stem rises the scape, bearing a very long spike of greenish-yellow pendulous cylindrical flowers, which, as they expand, become ascendent at the point, and the orange-red coloured stamens and style are protruded for some distance beyond the corolla.

Our drawing was from a specimen kindly communicated by Mr. THOMAS HITCHEN, of Norwich, from his very extensive collection of succulent plants, in December 1823. Mr. HAWORTH suggests that the blossoms might have had more of a red tinge, if they had been produced later in the season, when they could have enjoyed a greater share of light.



ALOE ALBICANS. HARD-LEAVED ALOE.

Class and Order.

HEXANDRIA MONOGYNIA.

Generic Character.—*Vid. No. 1352.**Specific Character and Synonyms.*

ALOE *albicans*; (*ecaudicata*; *flores e minoribus, bilabiati, erecti*;) foliis numerosis rosaceo-aggregatis patentibus, ovato-acuminatis, brevibus, rigidissimis, crustam cartilagineam tenuem glabram diaphanam toti eorum superficiei æquabiliter obductam pallide translucentibus, supra depresso-fusculis infra convexis, carinato-cuspidatis, marginis atque carinæ cartilagine crassiore vitreo-pellucente quandoque imperfecte dentiente; caule subquadriramoso; racemis laxius multifloris*; pedicellis flore quater brevioribus; corolla subventricoso-cylindrica pro tribus partibus concreta, bilabiato-aperta, laciniis obtusis, externis duplo angustioribus, labii superioris explicatioribus, inferioris media magis convoluta quam reliquæ fructificationis organis corolla duplo brevioribus. G.

ALOE *albicans*. *Harworth in Linn. Transf. 7. 8. Hort. Kew. ed. 2. 299.*

A. marginata. *Lamarck Encyc. 1. 89. n. 17.*

A. africana humilis folio in summitate triangulari et rigidissimo, marginibus albicantibus. *Commel. Præhud. 81. tab 35; sine flore. Id. in Ic. Plant. Rar. 48. tab. 48; cum flore.*

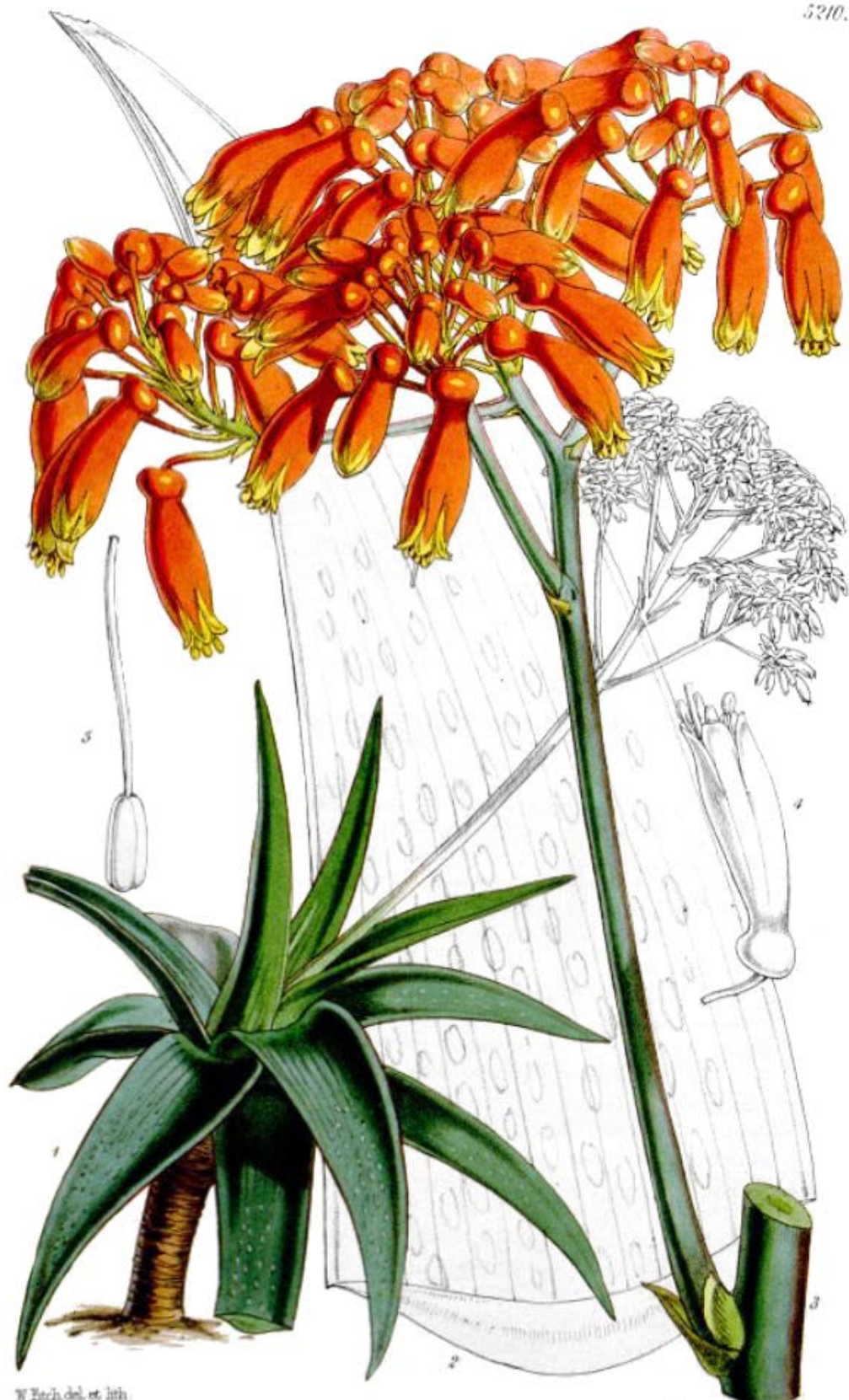
DESCR. *Leaves* about two inches long, about one and a half broad at the widest part; *stem* about a foot and half high; *corolla* upright-divergent, half an inch long, dingyly party-coloured with white, purple, and green; the cartilaginous efflorescence which usually shews itself on the leaves of this genus in variously dispersed tubercles, prickles, &c; is here confluent, and spreads itself in a thin even coat over their whole

whole surface; and being whitish and transparent imparts a hue that at once distinguishes the species from its congeners. Comes the nearest to *margaritifera* (N^{is}. 815, 1360) of any other known to us. Native of the Cape of Good Hope, from whence it was imported into the Kew Gardens, by Mr. MASSON in 1795; but had been known in the Dutch collections long before. A very rare plant, and according to Mr. HAWORTH (to whom we are obliged for the specimen) difficult to preserve, as well as to propagate. Should be kept in the greenhouse; blooms in August; has no scent. G.

NOTE.

ALOE DEPRESSA; *supra* No. 1332. At the suggestion of Mr. HAWORTH, we have looked again to the article *ALOE ferra* in the "Plants graffes" of DECANDOLLE, and are now convinced as well as that gentleman, that it is the same with *depressa* and ought to be added to the synonymy of that species; although the figure is miserably uncharacteristic.

ALOE ferra. Decandolle pl.gr. 80; cum icone mala.



ALOE ALBO-CINCTA.

White-margined Aloe.

Nat. Ord. ASPHODELEÆ.—HEXANDRIA MONOGYNIA.

Gen. Char. Corolla tubuloso-6-fida vel hexapetalo-partita, carnosula, basi nectarifera, in tubum connivens; limbo regulari, patulo, vel recurvo-bilabiato; *laciniis* ligulatis, exterioribus interiores æquales vel longiores imbricatim obtinentibus. Stamina hypogyna, assurgentia, tubo æqualia, vel exserta. *Stylus* exsertus v. subnullus, trisuleus. *Stigma* simplex, v. 3, minuta, replicata. *Capsula* membranacea, scariosa, rotunde vel acute trigona, 3-locularis, 3-valvis, *valvis* medio septigeris. *Semina* numerosa, biserialia, subrotundo-complanata, v. trigona, alata angulosave. *Gawl.*

ALOE *albo-cincta*; caule 2–3-pedali subarboreo crasso simplici, foliis magnis 12–16-uncialibus lato-lanceolatis sensim acuminatis crassis integerrimis cartilagineo-rubro- v. albo-marginatis glaucis obscure striatis lineari-maculatisque, pedunculo seu scapo subbipedali apice paniculatim patenti-cymoso, bracteis ad basin ramorum, floribus racemosis omnibus etiam ante anthesin pendulis clavatis rubro-aurantiacis basi ventricosis.

ALOE *albo-cincta*. *Haworth, Suppl. Pl. Succul.* p. 43. *Rœm. et Schk. Syst. Veget.* v. 7. p. 698. *Kth. Enum. Plant.* v. 4. p. 525.

If the African Aloes have lost caste among cultivators of the present day, there are few, we think, who could have seen the present species, as we saw it in the summer of the present year, in Mr. Wilson Saunders's succulent-house at Hillfield, who would not deem it highly deserving of a place in their greenhouse. It is the handsomest we know of the genus by far, striking in its foliage, and still more so in its drooping flowers, which form a spreading, compound, almost umbellate cyme, of a rich yellowish-red colour. Our friend has long had it in cultivation under the name here given, and it seems quite correctly so; but this is the first instance known of the flowering of the plant. Had Haworth been acquainted with the inflorescence, he would never have made the remark, "Fortasse est mere junior *A. striatæ* (*A. paniculatæ*, *Jacq.*).” Mr. Wilson Saunders

has lately received young plants from his collector Mr. Cooper, found in Algoa Bay.

DESCR. The *stem* forms a cylindrical trunk two and a half feet high, and stout. *Leaves* few, spreading, a foot to eighteen inches long, and six inches wide, almost an inch thick at the base, quite entire at the margin, and there cartilaginous and white or tinged with red. The green of a glaucous hue, faintly striated, and marked with obscure, whitish, elongated spots. *Scape* or *peduncle* elongated, compressed, paniced at the top, bearing numerous *racemes*, arranged in a broad, flattened *cyme*, of drooping *flowers*, an inch and a quarter long clavate, and singularly inflato-globose at the base. *Stamens* scarcely exerted. *Ovary* oblong; *style* as long as the stamens; *stigma* obtuse.

Fig. 1. Flowering plant, much reduced. 2. Apex of a leaf. 3. Portion of a panicle:—*nat. size*. 4. Flower. 5. Pistil:—*magnaified*.



ALOE ARACHNOIDES. SPIDER-FOOTED-
LEAVED ALOE.

Class and Order.

HEXANDRIA MONOGYNIA.

Generic Character.

Cor. erecta, ore patulo, fundo nectarifero. *Filam.* receptaculo inferta.

Specific Character and Synonyms.

ALOE *arachnoides* (*acaulis*) foliis erecto et arctatim ambientibus, sublanceolatis, sursum cuspidato-trigonis, exque spinis parallelis filiformibus membranaceo-lentis echinatis; bracteis pedicellos brevissimos superantibus; corolla subventricoso-cylindrica, ore ringente. G.

ALOE *arachnoides*. *Decand. Pl. Gr. liv.* 9. *t.* 50.

ALOE *arachnoides* α communis. *Willd., Sp. Pl.* 2. *p.* 183. *Hort. Kew.* 1. *p.* 467. *Thunb. Aloe*, n. 7. *Prod.* 61. *Mart. Mill. Dict.* n. 3.

ALOE *pumila* δ *arachnoides*. *Sp. Pl.* 460.

ALOE *africana humilis arachnoidea*. *Comm. Prelud.* 78. *t.* 27. *optime. Knorr del.* 1. *t.* A. 11. *Brad. Succ.* 3. *p.* 12. *t.* 30.

ALOE *arachnoidea humilis*. *Weinm. Phyt. Icon.* 73. 6. *male.*

ALOES *patte d'araignée*. *Lamarck Encyc. n.* 13. *var.* α .

Leaves very short, remarkable for the soft membranous spines that edge the upper part of their sides and keel, which somewhat resemble the legs or feet of some spiders, whence it takes its trivial name, and not from the leaves being covered with

with web-like filaments, as in *SEMPERVIVUM arachnoideum*, so that the English name of Cobweb Aloe given by MILLER is inapplicable. The pedicles are very short and far exceeded by the bractes. The corolla ventricosely cylindrical and bilabiate. Filaments somewhat unequal, about equal to corolla. Style very short, stigma trigonal, subcapitate.

Found by THUNBERG at the Cape, in Carro, near Swartkop's Saltpans. Cultivated with us so long since as 1725, and is now a very common plant. G.



ALOE ARACHNOIDES. (γ) RETICULATA. PALE
NETTED-VEINED-LEAVED DWARF ALOE.

Generic Character.—*Vid. N^m. 765.*

Specific Character and Synonyms.

ALOE *arachnoides*; (*ECAUDICATA*; *flores e minoribus, recti, erectiusculi*;) foliis brevibus, radicalibus, multifariis, rosaceo-aggregatis, acuminatim lanceolatis, crassis, succulentis, subtus pulvinato-carinatis, supraconvexulis, glabris, fursum trigono-cuspidatis; scapo simplice, remotius racemoso; pedicellis corolla 2-3plo brevioribus, bractæas subæquantibus; corolla sexpartita, ventricoso-cylindræa, superne bilabiato-ringente; staminibus inclusis. *G.*

(α) foliis margine subtusque membranaceo-echinatis. *G. Vide supra No. 756.*

(β) cespitose stolonifera; foliis atrovirentibus nitidis, ciliatis, infra papillofis. *G.*

ALOE *pumila*. *Haworth Linn. Transf. 7. 10. Thunb. Prod. 61. A. atrovirens. Decand. Pl. Gr. tab. 51.*

A. herbacea. Mill. Dict. ed. 8. n. 18.

A. arachnoides. pumila. Hort. Kew. 1. 468. Willd. Sp. Pl. 2. 188.

A. pumila. ϵ . arachnoidea. Linn. Sp. Pl. ed. 2. 1. 460.

A. africana minima atro-viridis, spinis herbaceis numerosis ornata. Boerb. Ind. alt. 2. 131. Mill. Dict. ed. 7. 18.

(γ) foliis crassioribus, obtusioribus, pallidioribus, glabris, margine tantummodo carinaque obsolete denticulatis. *G.*

ALOE *reticulata. Haworth Linn. Transf. 7. 9.*

MILLER, when speaking of our variety β , mentions his "having raised a variety of that from seeds which had shorter, whiter, and smoother leaves, but which had not then flowered with him." This we take to be no other than our present plant. Mr. HAWORTH, who kindly furnishes us with the specimen, has constituted it a distinct species under the name we have cited above; and both he and DECANDOLE have specifically separated β from α ; but (as it appears to us) without sufficient grounds. At all events if this is really the variety MILLER says he raised from the seeds of β , there can be no dispute about the specific identity at least of these two; unless they should be deemed hybrid plants. *G.*



ALOE ARACHNOIDES (δ) TRANSLUCENS.

TRANSPARENT-LEAVED ALOE.

Class and Order.

HEXANDRIA MONOGYNIA.

Generic Character.—*Vid. N^m. 1352.**Specific Character and Synonyms.*ALOE *arachnoides*. *Vid. No. 1314.*(α .) *communis*. *Supra No. 756.*(β .) *pumila*. *Supra No. 1361.*(γ .) *reticulata*. *Supra No. 1314.*(δ .) *translucens*; foliis pallidiffimis, transparentibus, margine et carina setaceo-denticulatis, cuspidate terminali membranacea nec echinata; caule sæpe foliolis sphacelatis præ aliis numerosius stipitato. G.ALOE *translucens*. *Haworth Linn. Transf. 7. 10. n. 15. Hort, Kew. ed. 2. 2. 300.*ALOE *pumilio*. *Jacq. Hort. Schænb. v. 4. t. 34.*

For general account of the species, see Numbers 756, 1314, and 1361. Our drawing was made from a plant that flowered this summer in Mr. HAWORTH's collection. We are informed that it is the rarest and most difficult to preserve of the four we have mentioned as varieties. G.

NOTE.

No. 1165. LILIUM CONCOLOR.

The following synonym may be added with certainty to that species, viz.

Santan, vulgo *Fime Juri*. *Lilium* quasi cruore infectum, caule pedali foliis angustis spicato.

Idem S. Corona imperialis fl. puniceo fanguineis punctis decorato. *Kæmpf. Amæn. Exot. 871. Fig. MSS. 141; optima.*

N^o 1306.



Dr. W. H. Barlow, St. Geo. Croquis, Aug. 1, 1910.

Dr. W. H. Barlow, St. Geo. Croquis, Aug. 1, 1910.

ALOE ARBORESCENS. NARROW-LEAVED
SWORD-ALOE.

Specific Character and Synonyms.

ALOE *arborescens*; (*subarboreo-caulescens*; *flores e majoribus, recto-cylindrici, hexapetalo-partiti, nutantes*;) foliis amplexicaulibus, in comam terminalem ambienter aggregatis, lorato-acuminatis, fere a basi attenuatis, convolutis-concavis, recurvato-reflexis, succulentis, glabris, glaucescentibus, margine serrato-spinosis, dentibus junioribus viridibus; caule simplici, bracteis vagis confito; racemo pyramidali-oblongato, densiore; pedicellis erecto-divergentibus, bracteis ovato-acuminatis subæquantibus; corolla his sublongiore, rotundato-trigona, ore brevi-patula; staminibus subinclusis; stylo subexserto. G.

ALOE *arborescens*. Mill. *Dict. n. 3. Decandolle Pl. Gr. 38. cum Ic. Haworth in Linn. Transf. 7. 2. n. 43. (excl. perfoliata. β. Linn. et Comm. Præl. 69. t. 18.) Bot. Rep. tab. 468.*

A. *perfoliata*. α. *arborescens*. Hort. Kew. 1. 466. Mart. Mill. *Dict.*

A. *perfoliata*. η. Linn. *Sp. Pl. ed. 1. v. 1. 320. ed. 2. v. 1. 458. Willd. Sp. Pl. 2. 186; ubi ut et in ed. 2. Sp. Pl. ex lapsu typographico omittitur η propria varietatis nota.*

A. *africana* caulescens foliis glaucis caulem amplectantibus. *Comm. Hort. 2. 27. tab. 14.*

A. *caulesc.* fol. reflexis margine spinosis africana. Pluk. *Phyt. 129. f. 3.*

ALOES à cornes de belier. Lam. *Dict. Encyc. 1. 87.*

Common Cape Tree-Aloe. Pet. *Gaz. Dec. 7 et 8. p. 10. tab. 86. f. 3.*

Caudex sometimes attaining the height of ten or twelve feet; *leaves* about two inches broad at their base; *bractes* reddish, striate, membranous-sphacelate; *corolla* of a bright red colour, greenish at the end; alternate *stamens* somewhat broader and firmer than the others as well as shorter; *anthers* while entire vermilion coloured; *style* flexuose upwards with a simple stigmatose point.

A greenhouse

A greenhouse plant. Native of the Cape of Good Hope. Cultivated by P. MILLER. Flowers in November and December. We are indebted for the present specimen to the kindness of Mr. HAWORTH, whose collection of succulent plants is probably the completest in England. G.

NOTE.

No. 663. SCILLA ITALICA.

Since our account of this species, we have assured ourselves that the *italica* of LINNÆUS is the same with the *verna* of HUDSON and subsequent authors; and of course distinct from the plant given in the above-cited *Numero*; which is however the *italica* of the *Hortus Kewensis*, specimens of which are deposited in the Bankian Herbarium. The synonymy adduced by HUDSON to *verna* is erroneous, and belongs to the plant given in our work. Thus the Linnean *italica* with the synonyms should be referred to *verna*; whilst our synonymy should be amended as follows:

SCILLA *italica*. Hort. Kew. 1. 443. Allion. Fl. pedem. n. 1896. Link et Hoffm. in SCILLA. Ann. Bot. 1. 102; excl. passim Linnæo ejusque synonymis ad vernam relegandis. G.

PHALANGIUM, &c. Hall. Helv. n. 1212. excl. syn.

ORNITHOGALUM hispanicum minus. Clus. Hist. 1. 188. Park. Par. 139. Ger. Emac. 166. fig. 4.

In *italica* the bractes are double, in *verna* single. There is no specimen of *italica* in the Linnean Herbarium; of course the species must be made out from the synonymy and what description is left us. Is the *vincentina* really distinct from *italica*? See our enumeration of the species in No. 1185. G.

ERRATA.

No. 1293, pag. alt. l. 28, for "6" read "68."

No. 1298, l. 23, pro "*tationibus*" lege "*citationibus*."

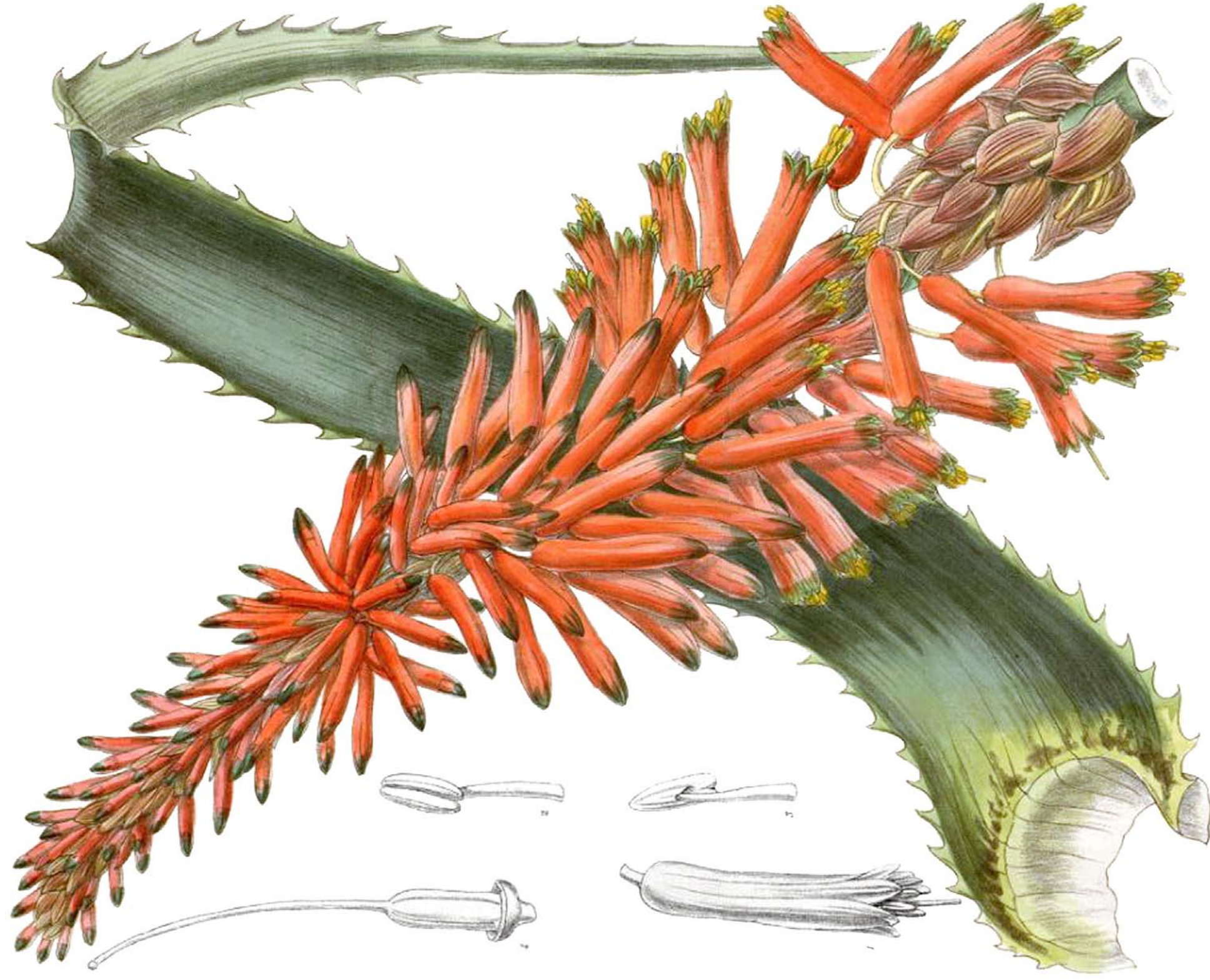
———— pag. alt. l. 28, for "No. 51" read "No. 121."

No. 1299. l. 16, for "*a*" read "*b*."

———— l. 17, for "*b*" read "*a*."

No. 1301, l. 17, pro "*Eys*." lege "*Elys*."

No. 1303, Pag. alt. l. 35, pro "CREAM" lege "cream."



TAB. 8663.

ALOE ARBORESCENS, VAR. NATALENSIS.

Natal.

LILIACEAE. Tribe ALOINACEAE.

ALOE, Linn.; *Benth. et Hook. f. Gen. Plant.* vol. iii. p. 775.

Aloe arborescens, var. **natalensis**, *Berger in Eng. Pflanzenr., Asphodel.-Al-oin.* p. 290; a typo foliis glaucis supra subplani pedunculoque subsimplici differt.

Frutex altus, e basi multiramosus; rami erecti vel erecto-patentes. *Folia* ad ramorum apices dense congesta, e basi dilatata ensiformia, supra gradatim attenuata, reflexa vel subfalcatim deflexa, 45–50 cm. longa, 5 cm. lata, supra subplana, subtus convexa, glauca, ad apicem rubescentia, anguste cartilagineo-marginata; dentes hamato-incurvi, inferiores 4 mm. longi et inter se 10 mm. distantes, superiores 10–20 mm. distantes. Pedunulus erectus vel arcuato-erectus, robustus, 40–50 cm. altus, simplex vel ramo brevi laterali praeditus; racemus 20–25 cm. longus; bracteae steriles plures, late deltoideae; bracteae fertiles dense imbricatae, ovato-oblongae, obtusae, rubescentes, demum brunneae, scariosae. *Perianthium* 3·8–4·5 cm. longum; tubus rectus vel leviter curvatus, infra medium constrictus, ruber; segmenta 3–5-nervia, exteriora subacuta, interiora obtusa, viridia. *Stamina* breviter exserta.—*A. natalensis*, Wood & Evans in *Journ. Bot.* 1901, p. 170, and *Natal Plants*, t. 258; Schoenl. in *Rec. Albany Mus.* vol. i. p. 43 (1903). *A. arborescens*, Salm-Dyck, *Monogr. Aloes*, § 26, fig. 3; Baker in *Journ. Linn. Soc.* vol. xviii. p. 175, et in *Dyer, Fl. Cap.* vol. vi. p. 822, partim; Berger in *Gartenwelt*, vol. x. p. 13, cum icon. (1905).—C. H. WRIGHT.

The typical form of *Aloe arborescens*, Mill., which was originally described in the eighth edition of the *Gardeners' Dictionary*, has long been known in cultivation and was figured at t. 1306 of this work. It is readily distinguished from all the five varieties which have at various times been associated with it in its arborescent habit, its trunk at times reaching a height of over twelve feet. Mr. Berger, who has recently subjected the genus to careful study, has retained the stemless or short-stemmed forms in *A. arborescens*, and has proposed for the original tall-stemmed plant the varietal name *Milleri*. The short-stemmed form now figured, which competent South African botanists seem disposed to consider a distinct species, Mr. Berger has treated as only a variety, var. *natalensis*, and Mr. Wright has accepted Berger's view. This variety has had a history quite as prolonged as that

JUNE, 1916.

of Miller's original plant. It is recorded as having been grown at Amsterdam by Adrian van der Stel as long ago as the beginning of the eighteenth century. It was first figured in the monograph published by Prince Salm-Reifferscheid-Dyck in 1817. It is distinguishable from Miller's plant not only in habit but in having the leaves almost flat instead of channelled near the middle on the upper side and in having the raceme, at least when young, conical rather than cylindric. The inner perianth-segments are sometimes yellowish. The material for our plate has been supplied from a plant grown in the garden of Lady Hanbury at La Mortola. As a wild plant our variety has been met with by the late Dr. Medley Wood at altitudes of 800–3,000 feet in Natal, and by Dr. S. Schoenland at an altitude of 1,000 feet in Komgha, always in rocky situations. The various varieties of *A. arborescens* are among the easiest of Aloes to cultivate. They grow vigorously in poor gravelly soil provided the position given be a sunny one in a warm house, and if they receive a fair allowance of water at the root in summer. One of the stemless varieties is very commonly grown as a window plant in country cottages.

DESCRIPTION.—*Shrub*, freely branching at the base; branches erect or slightly spreading. *Leaves* densely clustered at the tips of the branches, ensiform from a broad base, gradually narrowed upwards, reflexed or falcately deflexed, about $1\frac{1}{2}$ ft. long, 2 in. wide, nearly flat above, convex beneath, glaucous, reddish towards the tips, margin narrowly cartilaginous; teeth incurved-hooked, the lower $\frac{1}{6}$ in. long and $\frac{1}{3}$ in. apart, the upper $\frac{1}{2}$ – $\frac{2}{3}$ in. apart. *Peduncle* erect or upcurved, stout, up to $1\frac{1}{2}$ ft. long, simple or at times with a short lateral branch; raceme 8–10 in. long; sterile bracts rather numerous, wide deltoid; fertile bracts closely imbricate, ovate-oblong, blunt, reddish, becoming brown and scarious. *Perianth* $1\frac{1}{2}$ – $1\frac{3}{4}$ in. long; tube straight or slightly curved, narrowed below the middle, red; lobes 3–5-nerved, the outer somewhat acute, the inner blunt, green. *Stamens* slightly exserted.

Fig. 1, perianth; 2 and 3, stamens; 4, pistil:—all enlarged.

TAB. 6848.

ALOE BAINESII.

Native of Natal and Kaffraria.

Nat. Ord. LILIACEÆ.—Tribe ALOINEÆ.

Genus ALOE, Linn.; (*Benth. et Hook .f. Gen. Pl.* vol. iii. p. 776.)

ALOE *Bainesii*; arborea, 40–60-pedalis, trunco erecto copiose ramoso crassitie, 4–6-pedali, foliis ad ramorum apices dense rosulatis ensiformibus 2–3-pedali-bus viridibus leviter glauco tinctis facie canaliculatis margine acuteis parvis patulis deltoideis corneis armatis, racemis densis oblongis paniculatis, pedunculis brevibus rachibusque valde incrassatis, pedicellis brevissimis apice articulatis, bracteis minutis, perianthio oblongo splendide rubro sesquipollicari, segmentis oblongis valde imbricatis tubo subæquilongis apice patulis viridibus, staminibus styloque conspicue exsertis.

A. Bainesii, *Dyer in Gard. Chron.* 1874, p. 568, figs. 119, 120; *Baker in Journ. Linn. Soc.* vol. xviii. p. 178.

A. Barberae, *Dyer loc. cit.* fig. 122.

A. Zeyheri, *Hort. non Salmdyck.*

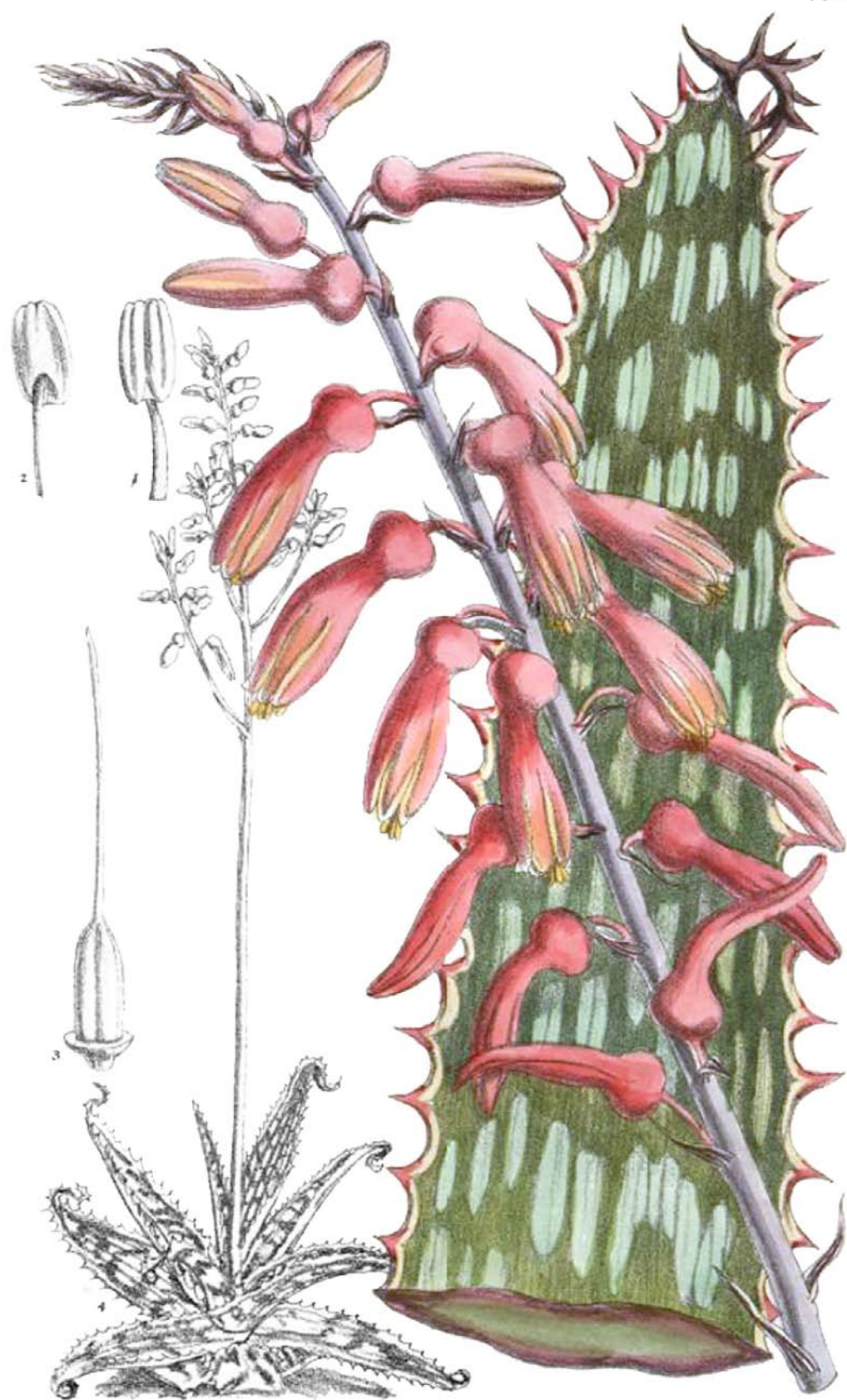
This species is distinctly and decidedly the finest of all the one hundred and fifty different kinds of Aloe. Although we have had it at Kew for at least twenty years, its growth is so slow that it is likely to be many years more before it reaches the flowering stage, and we are indebted to Professor Macowan for the materials upon which the present plate is founded, a coloured drawing and a photograph of a fine plant, which is one of the chief objects of interest in the Cape Botanic Garden. For many years we had a young plant at Kew under the unpublished name of *Aloe Zeyheri*. In 1874, Mr. Thiselton Dyer took great pains to work out the neglected subject of the Cape tree-aloes. The result of his investigations was published in a paper, illustrated by a series of woodcuts, in the “Gardener’s Chronicle.” In this he explained as fully as the material then obtained would allow the differences between the tree-aloe of the eastern provinces and the old well-known *Aloe dichotoma* of the west, of which Pater-son gave a figure as long ago as 1789; citing extracts from the letters of Mr. Baines and the Rev. R. Baur as to its habit and localities. At that time we supposed, judging

DEC. 1ST, 1885.

from very imperfect material, that the Natal and Kaffrarian plants were distinct species, but as further information has accumulated, this view has been abandoned, and our present idea is that there is but one species in the west, *Aloe dichotoma*, and one in the east, for which the name *Aloe Bainesii* has been maintained, both with a wide latitudinal range. Since Mr. Dyer's paper was written, Mr. Roland Trimen sent to England in 1879 a supply of flowers of the two species preserved in spirit; and now we have Professor Macowan's sketch, and may be considered to know the eastern plant quite fully. The entire plant in our plate is copied from a photograph by Mr. Barnard of Cape Town, and the remainder from a coloured drawing by Mr. H. Merstell, both communicated by the director, Professor Macowan.

DESCR. A tree, attaining a height of forty or sixty feet. *Trunk*, in a specimen measured by the Rev. R. Baur, sixteen feet in circumference three feet from the ground, forking low down, and dividing into numerous erect branches, with a smooth whitish epidermis, each bearing a rosette of spreading leaves at the tip. Spread of the crown in the plants drawn by Mr. Baines in the painting now over one of the fireplaces in the No. 1 Museum at Kew, fifteen feet. *Leaves* ensiform, two or three feet long in the young plant, much shorter in the rosettes of the mature tree, two or three inches broad a little above the base, narrowed very gradually to the apex, green with only a slight glaucous tinge, channelled down the face, margined with small spreading horny deltoid prickles. *Inflorescence* a panicle of several racemes issuing from the centre of the rosette of leaves, with a short very stout woody peduncle and a corrugated rachis nearly an inch in diameter; pedicels very short, red, articulated at the apex; bracts minute. *Perianth* oblong, bright rose-red, an inch and a half long, half an inch in diameter; segments about as long as the tube, much imbricated, spreading and tinged with green at the tip. *Stamens* exserted half an inch beyond the tip of the perianth; anthers small, oblong. *Style* exserted a little beyond the stamens.—*J. G. Baker.*

Fig. 1, The whole plant, from a photograph taken in the Cape Botanic Garden; 2, a leaf, about half the natural size; 3, peduncle; and 4, a raceme, both rather less than natural size; 5, a single flower, natural size.



M. S. del J. N. Fitch, lith.

Vines & Brosden Day & Son, Lith.

I. Raeburn & C^o London.

TAB. 7948.
ALOE BAUMII.
Native of South-west Africa.

Nat. Ord. LILIACEÆ.—Tribe ALOINEÆ.

Genus ALOE, *Linn.*; (*Benth. et Hook. f. Gen. Plant.* vol. iii. p. 776.)

ALOE *Baumii*; acaulis (fere acaulis Engl. et Gilg) foliis circiter 15–20 dense rosulatis lanceolatis patentissimis 9–12 poll. longis basi $2-2\frac{1}{2}$ latis 5–6 lin. crassis apice in plantis cultis cito plus minusve marcescentibus supra planis maculis numerosis albidis oblongis longitudinalibus ornatis margine regulariter dentatis dentibus e basi lata rigidissimis corneis pungentibus fere rectis circiter 3 lin. longis inter se 4–6 lin. distantibus, scapo solitario erecto graciliusculo 3–5-pedali supra medium laxè simpliciterque ramoso ramis 3–10 erectis laxifloris, bracteis herbaceis albidis lanceolato-caudatis sursum gradatim minoribus supremis pedicellis paullo longioribus, pedicellis vix 3 lin. longis, floribus rubro-coccineis (flavido-rubrescentibus Engl. et Gilg.) $1-1\frac{1}{2}$ poll. longis pendulis, perianthii tubo supra ovarium valde constricto lobis tubo brevioribus erectis (an semper ?) interioribus latioribus omnibus subobtusis, staminibus styloque brevissime exsertis.

A. *Baumii*, *Engler & Gilg, in Warburg (Baum's) Kunene-Sambesi Exped.* pp. 136, et 191-2, fig. 90.

We are indebted to Sir Thomas Hanbury for the opportunity of figuring this handsome dwarf Aloe. Excellent specimens were sent to Kew by Mr. A. Berger, his enthusiastic gardener, together with notes, and a photograph of the plant, as growing in the beautiful gardens of La Mortola. This was in November of last year, and in the previous April specimens and a photograph of another plant were received from the same source under the name of *A. hereroensis*, Engl., of which also a drawing was made. At Kew we are unable to distinguish them specifically, but Mr. Berger maintains that they are different, and states, amongst other things, that the seeds are totally different. The seeds of *A. hereroensis*, he says, are among the smallest of the genus, and quite wingless, whereas those of *A. Baumii* are relatively large, and prominently winged. We have no seeds for comparison; but Engler describes the perianth of his *A. hereroensis* as “perianthio supra ovarium hand constricto,” and it is very decidedly constricted in the plant received under that name. In both of the cultivated plants the tips of the leaves are crippled and shrivelled; those of the plant

APRIL 1ST, 1904.

named *A. hereroensis*, crippled much earlier, and the leaves consequently very short. There is no crippling of the leaves in the figures of the wild plants of either of the species in question.

Sir Thomas Hanbury obtained his plant from the Berlin Botanic Garden, whither it was sent by Mr. Baum, the discoverer, now Curator of the Botanic Garden at Rostock. In the narrative of Mr. Baum's journey, as cited above, it is stated that this *Aloe* is extremely common, ranging from the Shella mountains eastward to beyond the Kuito River in Angola; that is between about 14° and 20° E. long., and about 16° to 18° S. lat. The plant photographed in the book named was at Chirumba, on the Kubango River, growing in sandy, gravelly soil, at an elevation of nearly 4,000 ft.

The Kaffirs of Humbe, on the Kunene River, in the west, make cakes of the flowers of *Aloe Baumii*. They boil and press the flowers for this purpose; but we are not told whether Europeans relish the said cakes.

Descr.—Stemless or nearly so. *Leaves* from fifteen to twenty, densely rosulate, lanceolate, spreading, nine to twelve inches long, two to two and a half inches broad at the base, nearly half an inch thick, more or less shrivelled at the tip in the cultivated plants, upper surface flat, beset with whitish, oblong spots, margin regularly toothed; teeth almost straight from a broad base, very rigid, horny, sharp, about a quarter of an inch long, a quarter to half an inch apart. *Scape* solitary, erect, rather slender, three to five feet high, loosely, simply branched above the middle; branches three to ten, nearly erect; bracts herbaceous, dirty white, lanceolate, long-pointed, gradually smaller upwards, uppermost slightly exceeding the pedicels, about a quarter of an inch long. *Flowers* loosely racemose, orange-red, one to one and a half inch long, pendulous. *Perianth* conspicuously constricted above the ovary; lobes shorter than the tube, erect, inner ones broader, all somewhat obtuse. *Stamens* and style very shortly exserted.—W. B. H.

Fig. 1 and 2, anthers; 3, gyæceum:—*all enlarged*; 4, whole plant, as cultivated in Sir Thomas Hanbury's garden:—*about one-sixth natural size*.



TAB. 7399.

ALOE BRACHYSTACHYS.

Native of Zanzibar.

Nat. Ord. LILIACEÆ.—Tribe ALOINEÆ.

Genus ALOE, Linn.; (*Benth. et Hook. f. Gen. Plant. vol. iii. p. 776.*)

ALOE *brachystachys*; caudice elongato simplici, foliis dense rosulatis ensiformibus sesquipetalibus vel bipetalibus pallide viridibus immaculatis, aculeis marginalibus deltoideis concoloribus magnitudine mediocribus, pedunculo flexuoso elongato, racemo denso simplici, pedicellis elongatis ascendentibus apice articulatis, bracteis orbicularibus parvis, perianthio cylindrico pallide rubro apice viridi, lobis lingulatis tubo brevioribus, staminibus demum breviter exsertis.

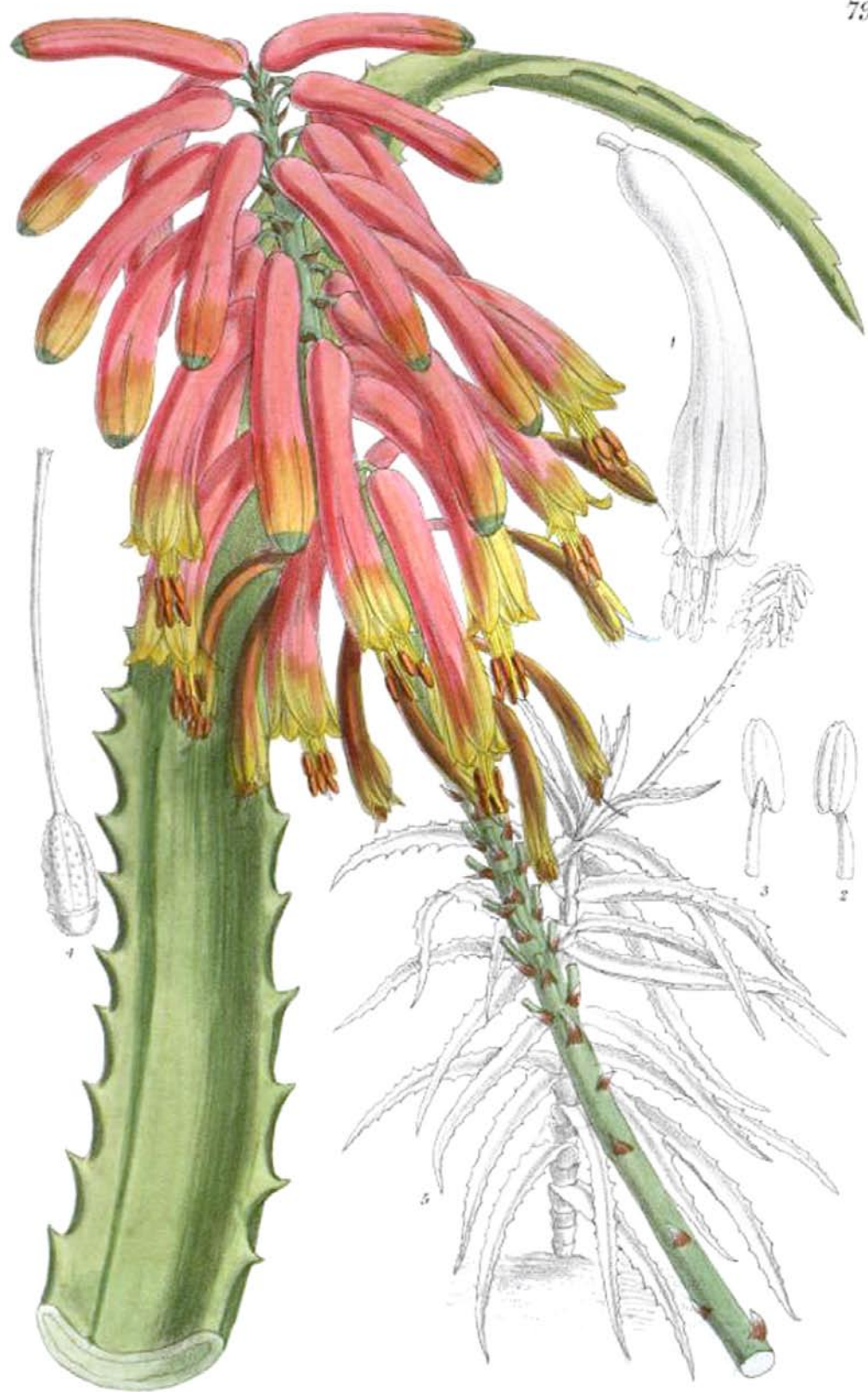
This new *Aloe* was sent by Sir John Kirk in 1884 to the Royal Gardens, Kew, from Zanzibar. It flowered for the first time in the Succulent House in January, 1894, and proved to be a new species. It belongs to the true Aloes, with a long caudex, and dense rosette of ensiform leaves. Its nearest allies are *A. abyssinica* (Bot. Mag. t. 6620), and the Angolan *A. littoralis*, Baker, which has not yet been brought into cultivation. The number of Aloes known in Tropical Africa has increased very largely of late years.

Descr.—*Caudex* long, slender, erect, simple. *Leaves* about twenty, crowded together at the top of the stem, all except the youngest drooping, ensiform, one and a half or two feet long, two inches broad above the dilated base, narrowed very gradually to the point, bright green, smooth on both surfaces, unspotted, a quarter of an inch thick in the middle; marginal prickles deltoid, middle-sized, not brown at the tip in the cultivated plant. *Peduncle* simple, very flexuose, about as long as the leaves. *Raceme* dense, simple, oblong, half a foot long; pedicels ascending, an inch long, articulated at the tip; bracts orbicular, much

FEBRUARY 1ST, 1895.

shorter than the pedicels, pale green, with 5–7 distinct brown stripes. *Perianth* cylindrical, an inch and a quarter long, pale pink, tipped with green; lobes lingulate, shorter than the tube. Stamens finally shortly exserted.—*J. G. Baker.*

Fig. 1, A flower, cut open; 2, stamens; 3, ovary, *all enlarged*; 4 whole plant, *much reduced*.



TAB. 7915.

ALOE CAMERONI.

Native of Eastern Tropical Africa.

Nat. Ord. LILIACEÆ.—Tribe ALOINEÆ.

Genus ALOE, Linn.; (*Benth. et Hook. f. Gen. Plant.* vol. iii. p. 776.)

ALOE *Cameroni*; frutex caulescens, erectus, omnino glaber (stirps depicta caule simplici circiter bipedali), foliis sparsis patenti-recurvis angustis lanceolatis 9–12 poll. longis infra medium circiter $1\frac{1}{2}$ poll. latis acutis concavo-convexis plano-convexisve circiter 3–4 lin. crassis viridibus margine remote breviterque spinoso-dentatis spinis basi latis apice incurvis, inflorescentia axillari simplici suberecta cum pedunculo elongate circiter pedali, bracteis scariosis basi latis acute acuminatis pedicellis brevioribus, pedicellis $1\frac{1}{2}$ –2 lin. longis, floribus rubro-luteis ad apicem pedunculi confertis pendulum cum staminibus exsertis circiter bipollicaribus, perianthii tubo fere cylindrico leviter curvato infra medium leviter constricto, limbi lobis oblongis apice tantum leviter recurvis obtusis vel rotundatis, ovario obscure verruculoso, style breviter exserto.

Aloe *Cameroni*, *Hemsl.*

A. macrosiphon, *Kew Hand-list of Tender Monocotyledons* (1897), p. 173, non *Baker Fl. Trop. Afr.* vol. vii. p. 459.

It is not without some misgivings that I have described this *Aloe* as a new species, but being unable to identify it with any of the fifty species described by Mr. J. G. Baker in the “*Flora of Tropical Africa*” (vol. vii. pp. 454-469), I must perforce give it a name. There is always a risk in dealing with a single species of a large and critical genus such as the present, especially as many, probably most, of the species are imperfectly known. The plant from which our drawing was made was sent to the Royal Botanic Gardens, Kew, in 1894, by Mr. K. J. Cameron, of the African Lakes Corporation, and was received in 1895, and flowered in February of the present year. In a letter to the Director, Mr. Cameron says, “At the request and with the assistance of Mr. Scott Elliot [whose travels in E. and W. tropical Africa and Madagascar are well known to botanists], I have selected the following plants from our garden at Mandala.” Then follows a list. In consequence, perhaps, of Mr. Scott Elliot’s action in connection with sending the plants in question, it was assumed before it flowered, that this *Aloe* was the same as one

SEPTEMBER 1ST, 1903.

which he collected between Urundi and Karagwe, in German East Africa. This has been described by Mr. Baker (*Fl. Trop. Afr.*, vol. vii. p. 459) under the name of *A. macrosiphon*. The specimen consists of a crumpled, imperfect leaf, the upper part of an inflorescence, and a few old flowers; and although the species is closely allied to *A. Cameroni*, Hemsl., the material is sufficient to prove that it is specifically different. The most prominent differences are the very much larger bracts and longer pedicels.

Descr.—An erect shrub with an unbranched stem about two feet high when the drawing was made. *Leaves* separated by short but distinct internodes, spreading, recurved, narrow-lanceolate or almost linear, nine to twelve inches long, about one and a half inch broad below the middle, acute, concavo-convex or plano-convex, one-third to a half inch thick, green, margin furnished with rather distant, spinous teeth having a broad base and an incurved tip. *Inflorescence* axillary, unbranched, sub-erect, including the elongated peduncle about a foot long. *Bracts* small, scarious, broad at the base, sharply acuminate, shorter than the pedicels. *Pedicels* about one-sixth of an inch long. *Flowers* almost cinnabar red, passing into yellow towards the top, including the exserted stamens two inches long, crowded at the top of the peduncle, pendulous. *Perianth-tube* nearly cylindrical, slightly curved, slightly constricted below the middle; lobes oblong, obtuse, recurved at the tip. *Ovary* obscurely warted; style shortly exserted.—*W. Botting Hemsley*.

Fig. 1, a flower; 2 and 3, anthers; 4, gynæceum:—*all slightly enlarged*.



M.S. del. J.N. Fitch lith.

Vincent Brooks Day & Son Lith.

L. Reeve & Co. London.

TAB. 8134.
ALOE CAMPYLOSIPHON.
Tropical Africa.

LILACEAE. Tribe ALOINNEAE.

ALOE, *Linn.; Benth. et Hook. f. Gen. Plant.* vol. iii. p. 776; *A. Berger in Engl. Bot. Jahrb.* vol. xxxvi. p. 42.

Aloe campylosiphon, *A. Berger in Notizbl. Königl. Bot. Gart. Berl.* vol. iv. p. 151; *Engl. Bot. Jahrb.* vol. xxxvi. p. 59; *A. saponariae*, Haw., proximas, foliis recurvatis lanceolatis differt.

Acaulis. *Folia* circ. 15, dense rosulata, lanceolata, longe acuminata, recurvata, apice subcarinata, circ. 12 cm. longa, basi 6 cm. lata, laete viridia maculis oblongis rotundisve albidis picta, subtus albo-marmorata; margines cartilaginei, purpurei, sinuato-dentati; dentes patentés, inter se 4–8 mm. distantes, purpurei, 2–3 mm. longi. *Inflorescentia* circ. 30 cm. alta, ramosa; racemus 10 cm. longus, densiflorus; bracteae 1–2 cm. longae, lanceolatae, acuminatae, scariosae, 3–5-nerviae; pedicelli erectopatente, per anthesin 1.5 cm. longi. *Perianthium* 3 cm. longum, corallinum; tubus circa ovarium globoso-inflatus deinde conspicue constrictus et manifeste decurvatus; lobi oblongi, subacuti, 1 cm. longi, ad margines pallidiores, intus lutei. *Filamenta* perianthio paullo longiora, basi complanata; antherae lineares, aurantiacae, dorsifixae. *Ovarium* oblongum, profunde trilobatum.

Aloe campylosiphon was discovered by Dr. A. Engler in Usambara, amongst rocks, on the dry summit of Bomule Mountain, at an altitude of 3,450 ft., and introduced into cultivation by him in 1902. He sent a plant to the late Sir Thomas Hanbury, K.C.V.O., in whose garden at La Mortola it first flowered in June, 1905, it was from this plant, at its second flowering in June, 1906, that our figure was taken. Mr. A. Berger writes: "it somewhat resembles the old *A. saponaria*, but differs in every way, and is a very distinct species."

In habit this species very strongly resembles *A. somaliensis*, C. H. Wright (ex W. Watson in Gard. Chron. 1899, vol. xxvi. p. 430; Kew Bulletin, 101, p. 135), but the perianth of the latter is not constricted above the ovary.

Descr.—*Stemless.* Leaves about 15 in a dense rosette, lanceolate, long-acuminate, recurved, slightly keeled at the apex, about $4\frac{3}{4}$ in. long, $2\frac{1}{2}$ in. wide at the base, bright green, and marked with oblong or round whitish spots above, marbled with white beneath; margins cartilaginous, purple, wavy and toothed; teeth standing out at right

MAY 1ST, 1907.

angles to the margin, $\frac{1}{6}$ – $\frac{1}{2}$ in. apart, purple, about 1 in. long. *Inflorescence* about 1 foot high, or slightly more; side branches 8 in. long, curved upwards; raceme 4 in. long, dense; bracts $\frac{1}{3}$ – $\frac{3}{4}$ in. long, lanceolate, acuminate, scarious, 3–5-nerved; pedicels $\frac{2}{3}$ in. long, becoming $1\frac{1}{4}$ in. long in fruit. *Perianth* a little over 1 in. long, coral-red; tube inflated around the ovary, then conspicuously constricted and curved; lobes oblong, subacute, about $\frac{1}{3}$ in. long, paler at the margins, yellow inside. *Filaments* a little longer than the perianth, flattened at the base; anthers linear, dorsifixed, orange. *Ovary* oblong, deeply three-lobed.—C. H. WRIGHT.

Fig. 1, flower; 2 and 3, stamens; 4, pistil; 5, whole plant:—1–4, *enlarged*, 5, *much reduced*.



ALOE CARINATA (α). KEEL-LEAVED ALOE.

Class and Order.

HEXANDRIA MONOGYNIA.

Generic Character.—*Vide supra* No. 756*Specific Character and Synonyms.*

ALOE *carinata*; (*ecaudicata*; *inflorescentia omnino Linguae, supra* No. 1322;) folliis subradicali-ambientibus, numerosis, affurgenter divaricatis, a lata basi subacinaci-formi-acuminatis, supra concavis infra carinato-convexis, crassis, rigidis, tuberculis pallidis parum elevatis (*nunc in meras maculas subsidentibus*) vagis parcius crebriusve inaequaliter (*nunc partim modo*) conspersis. G.

ALOE *carinata*. Mill. *Dict* ed. 8 n. 21. (*excl. Hort. Amst.*) *Hort. Kew.* 1. 469. Willd. *Sp. Pl.* 2. 189. (*excl. Linn. Sp. Pl. et Mart. Cent.*) Haworth. *Linn. Transf.* 7. 13. n. 24.

A. *carinata*. A. *acinaciformis*. Decand. *Pl. Gr. fol.* 63. (*excl. var. B. ensiformi, quæ una cum tabula ad verrucosam, supra* No. 837, *pertinet*).

A. *tristicha*. Medicus. *Theodora*. 75. n. 15.

A. *africana* foliis planis latioribus conjugatis carinatis flore rubro. Mill. *Ic. tab.* 19.

A. *seffilis* fol. verrucosis apice triquetris carnosiss. Mill. *Dict.* ed. 7. n. 21; (*excl. Hort. Amst.*)

A. *africana* folio in summitate triangulari verrucis albidis notato. Weinm. *Phyt.* No. 59.

A. *africana* seffilis, fol. carinatis verrucosis. Dill. *Hort. Elth.* 22. *tab.* 18. *fig.* 20.

(β .) foliis subdistichis. G.

Native of the Cape of Good Hope. Cultivated by SHEPARD in his garden at Eltham, and by MILLER in the Chelsea garden. A greenhouse plant. Blooms late in the summer.

Leaves

Leaves of a dark, sometimes purplish-brown green. The inflorescences of *maculata verrucosa* *Lingua* and the present species are so nearly alike, that they are of scarcely any avail in specifically distinguishing them from each other. DECAN-
DOLLE makes this and *verrucosa* varieties of each other; but MILLER, who had cultivated them from seed, denies their being so; and we entirely agree with him. A plant of easy culture and propagation; not quite so common in our collections as either *Lingua* or *verrucosa*. We have to thank Mr. HAWORTH for our specimen. *G.*

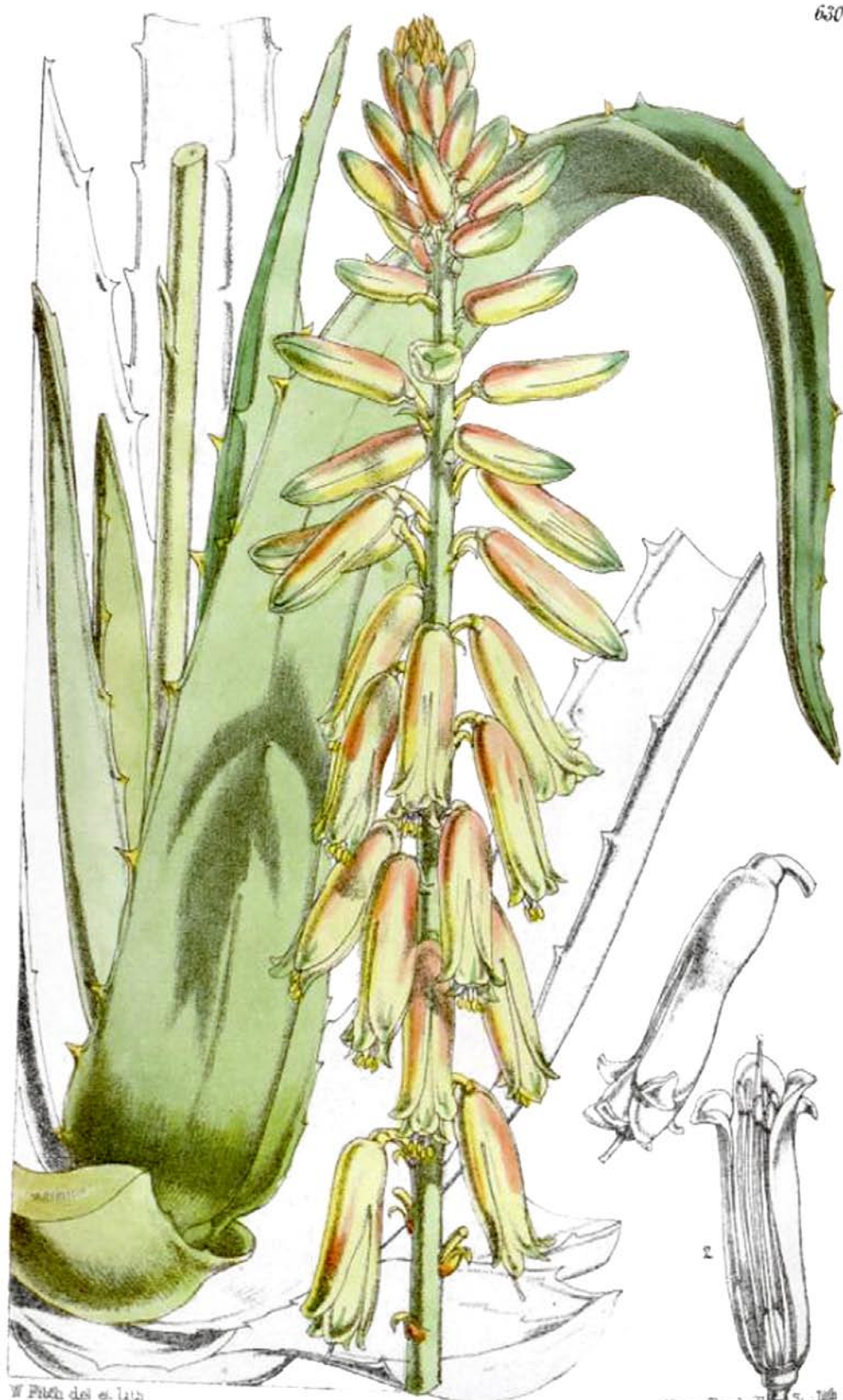
NOTE.

No. 1322. To the synonyms of the variety α . of *Lingua*, add;

ALOE *verrucula*. *Medicus. Theodora.* 73. n. 14.

ERRATUM.

No. 1324, pag. alt. l. 14. after "*gracile*" instead of a "comma" put a "semicolon," after which insert the word "and."



W. P. H. del. et. lith.

Fraser & Co. del. et. lith.

TAB. 6301.

ALOE CHINENSIS.

Native country unknown.

Nat. Ord. LILLIACEÆ.—Tribe ALOINEÆ.

Genus ALOE, Linn. (*Kunth, Enum.* vol. iv. p. 492).

ALOE *chinensis*; acaulis vel breviter caulescens, caule simplici, foliis 15–20 dense rosulatis lanceolatis acuminatis semi-pedalibus vel pedalibus viridibus canaliculatis utrinque maculis albidis parvis oblongis paucis vel numerosis decoratis dentibus pallidis deltoideis marginatis, scapo simplici sesquipedali bracteis paucis deltoideis instructo, racemo sublaxo, pedicellis brevibus inferioribus cernuis, bracteolis minutis lanceolatis, perianthii lutei rubro tincti tubo brevi campanulato, segmentis superne viridi vittatis, staminibus omnibus inclusis, stylo demum leviter exserto.

A. *barbadensis*, var. *chinensis*, *Haworth Suppl. Pl. Succ.* p. 45; *Kunth, Enum.* vol. v. p. 522.

Trusting to a large extent to garden tradition we venture to identify the present plant with an *Aloe* which was introduced from China, by Mr. William Anderson, in 1817, which was briefly described by Haworth, from flowerless specimens in his ‘*Supplementum Plantarum Succulentarum*’ of 1819, as a probable variety of *A. barbadensis*, and is mentioned in Salm Dyck’s monograph and Kunth’s *Enumeratio*, by name only. Our present plant is clearly quite distinct specifically from *A. barbadensis*. The leaves are never more than half the length of those of that species, and are spotted more or less copiously both on back and face after the fashion of *A. abyssinica*; the raceme is very much laxer and the stamens are very much shorter. We have had it for a long time in the Kew collection, and have received it from other gardens, but never, so far as I know, with any definite information as to its native country. The drawing was made from a plant that flowered at Kew this spring. The flowers have a strong and decidedly unpleasant scent. Its affinity is with *A. barbadensis*, *abyssinica* and *consobrina*.

DESCR. *Leaves* fifteen to twenty, extending on the stem over
JUNE 1ST, 1877.

a space of three or four inches in a sessile or shortly stalked rosette, which in the mature plant is multifarious, but in the young plant sometimes subdistichous, lanceolate, acuminate, varying from half a foot to a foot long, one and a half or two inches broad at the base, narrowed gradually to the point, flat at the base, where they are about half an inch thick, deeply channelled in the upper part, a sixth of an inch thick in the centre, pale green, irregularly marked on both surfaces with small oblong whitish blotches, which become less numerous in older specimens, the edge margined with copious spreading pale green deltoid prickles a twelfth or an eighth of an inch long. *Scape* simple, a foot and a half long, furnished with a few distant small deltoid bracts. *Raceme* simple, four to eight inches long, much laxer than in *A. barbadensis*, about two inches in diameter when expanded; pedicels a sixth to a quarter of an inch long, the lower ones cernuous; bracteoles lanceolate, as long as the pedicels. *Perianth* cylindrical, bright yellow, slightly tinged with red, an inch long; tube campanulate, an eighth of an inch long; segments lanceolate, keeled with green towards the tip. *Stamens* all included; filaments bright yellow; anthers oblong, small. *Style* finally just exerted.—*J. G. Baker.*

Fig. 1, A single flower; fig. 2, the same, cut open:—both magnified.



MS del. J. M. Patch lith.

Vincent Brooks Day & Son Lith.

L. Reeve & Co London

TAB. 8790.

ALOE CONCINA.

Zanzibar.

LILIACEÆ. Tribe ALOINACEÆ.

ALOE, *Linn.; Benth. et Hook. f. Gen. Plant.* vol. iii. p. 776.

Aloe (§ Monostachyae) **concinna**, *Baker in Dyer, Fl. Trop. Afr.* vol. vii. p. 461; *Berger in Engl. Pflanzenr.—Liliac. Asphodel.-Aloin.* p. 265, fig. 108, A-C; species *A. Dorotheae*, *Berger*, affinis, perianthio breviori differt.

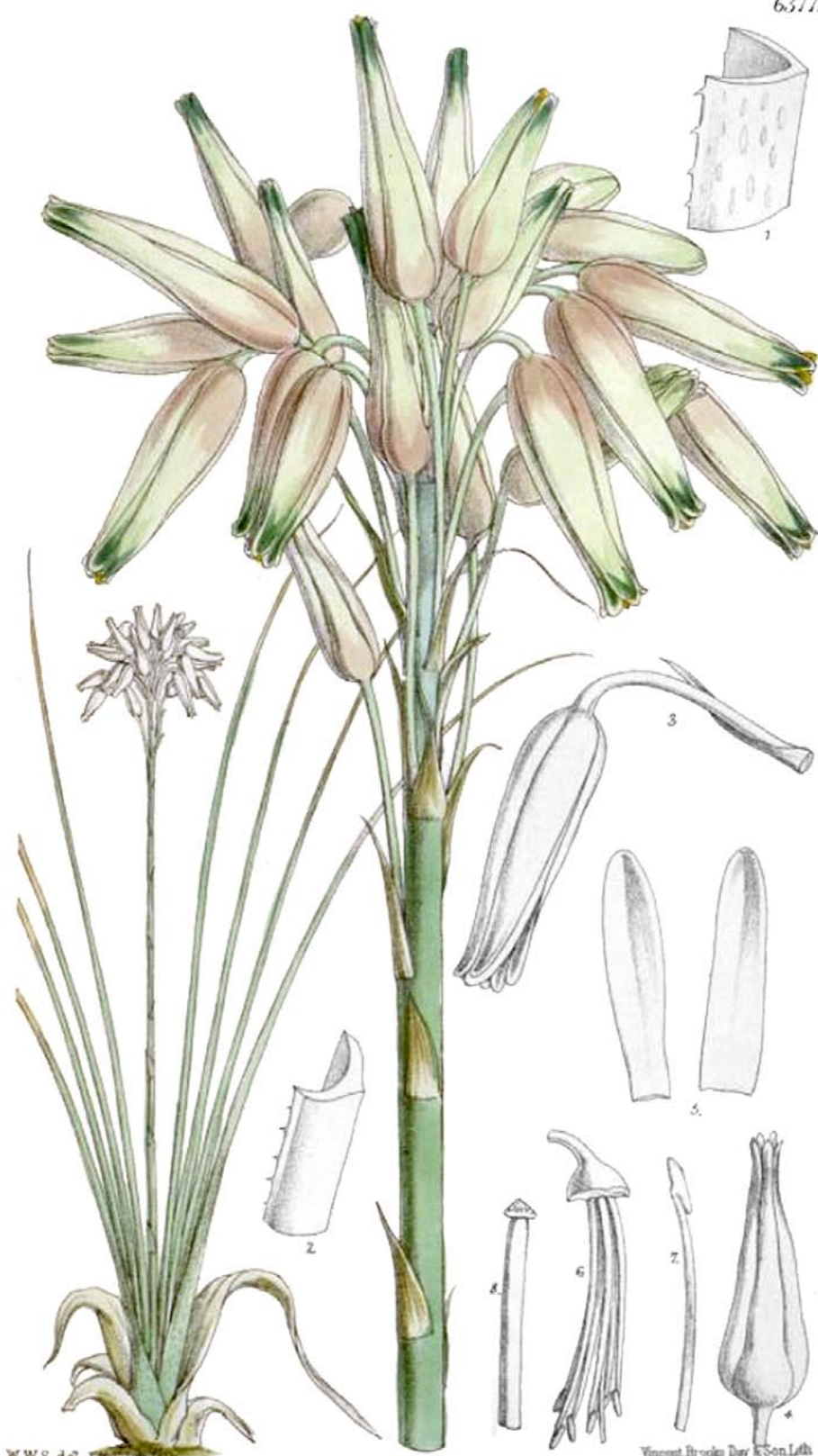
Suffrutex caulescens, 20–32 cm. alta. *Caulis* erectus vel adscendens, inferne nudus, cicatricibus foliorum delapsorum annulatus, 1 cm. diametro, supra foliatus, 1.3 cm. diametro. *Folia* quaquaversa, late lanceolata, ad apicem acutum gradatim acuminata, parte inferiore biconvexa, 1 cm. crassa, parte tertia superiore concavo-convexa, reflexa, dentibus approximatis deltoideis curvatis albis 4 mm. longis praedita, viridia, utraque maculis ovalibus pallidioribus notata. *Pedunculus* simplex, inclinatus, 12 cm. longus; pedicelli vix 1 cm. longi; bracteae lanceolatae, scariosae, quam pedicelli breviores; racemus 6 cm. longus. *Perianthium* cylindricum, 2–4 cm. longum, 7 mm. diametro, basi rubrum, medio flavum, apice viride; tubus brevis; lobi oblongi, obtusi. *Filamenta* perianthio aequilonga; antherae exsertae. *Ovarium* oblongum, leviter 3-lobum; stylus perianthio aequilongus.—C. H. WRIGHT

The *Aloe* now figured was first discovered at Zanzibar by Sir John Kirk by whom it was presented to Kew. It has grown satisfactorily in a sunny tropical house where it flowers in the autumn and suckers rather freely. The original plant flowered at Kew for the first time not in autumn but in April, 1895, and when it was then described by Mr. Baker it still had “laxly rosulate” leaves, but by 1901 it had developed a stem thirteen inches high with scattered foliage. From the suckers several independent plants have been raised and one of these, which forms the subject of our plate, flowered at Kew in October, 1916. One of the plants had by October, 1918, developed two stems, eleven and thirteen inches high respectively, with five basal offsets from one to two inches in height. The stem is relatively slender, and the naked portion is conspicuous on account of the
JANUARY-MARCH, 1919.

gradual increase in thickness from the base upwards. Though erect or at least ascending in these cultivated plants, the appearance of the stem suggests that in wild ones it may be more or less prostrate, a suggestion strengthened by the inclined position assumed by the inflorescence. The leaves, which are remarkable for their closely set silvery white spots, are relatively small for the genus; their sheaths are rather long and completely encircle the stem. It is singular that since its original discovery this species has not again been met with in a wild state. In the division of the section to which *A. concinna* belongs are included two other Aloes, both nearly related to our plant, yet both readily distinguished from it by their flowers, for one of them, *A. squarrosa*, Baker, a Socotran species, has a shorter perianth, while the other, *A. Dorotheae*, Berger, a species of German East Africa, has a longer perianth than *A. concinna*.

DESCRIPTION.—*Undershrub* with a distinct stem, 8–13 in. high, and succulent leaves. *Stem* erect or ascending, naked at the base where it is marked by the annular scars of the fallen leaves, and is about $\frac{1}{3}$ in. thick, leafy upwards, and there over 1 in. thick. *Leaves* scattered, wide-lanceolate, gradually narrowed to the acute tip, biconvex towards the base, and about $\frac{1}{3}$ in. thick, in the upper third concave above and convex below, reflexed and beset along the margin with rather close-set, curved, deltoid, white teeth about $\frac{1}{6}$ in. long, green and marked on both sides with silvery oval spots. *Peduncle* unbranched, slender, inclined to one side, 4–5 in. long; pedicels about 3 in. long; bracts lanceolate, scarious, shorter than the pedicels; raceme 3 in. long. *Perianth* cylindric, $\frac{3}{4}$ – $1\frac{1}{2}$ in. long, about $\frac{3}{4}$ in. across, reddish at the base, yellow towards the middle, green near the apex; tube short; lobes oblong, blunt. *Filaments* as long as the perianth; anthers just overtopping the perianth-lobes. *Ovary* oblong, slightly 3-lobed; style as long as the perianth.

TAB. 8790.—Fig. 1, a flower; 2 and 8, stamens; 4, pistil; 5, sketch of the entire plant:—*all enlarged except 5, which is much reduced.*



TAB. 6377.

ALOE COOPERI.

Native of Cape Colony and Natal.

Nat. Ord. LILIACEÆ.—Tribe ALOINÆÆ.

Genus ALOE, Linn. (*Kunth, Enum.* vol. iv. p. 492).

ALOE *Cooperi*; acaulis, foliis rudimentariis 3–4 lanceolatis membranaceis, productis 6–8 distichis lineari-subulatis basi dilatatis suberectis chartaceis albo maculatis margine cartilagineis dentibus minutis corneis præditis, pedunculo simplici pedali vel sesquipedali foliis paucis parvis bracteiformibus præditis, floribus 12–25 in racemum corymbosum dispositis, bracteis magnis lanceolatis, pedicellis inferioribus flore æquilongis, perianthii cylindrici rubro-lutei tubo campanulato, segmentis æqualibus lanceolatis superne viridibus, genitalibus inclusis, capsulæ valvis lanceolatis.

A. Cooperi, *Baker in Gard. Chron.* 1874, p. 628.

By the thin firm texture of their suberect long-tapering leaves, this species and *A. myriacantha* differ conspicuously from all the other Aloes in cultivation. The present plant was discovered by Burchell in the year 1814 in the neighbourhood of Uitenhage, flowering in January and February. It was refound in 1862 by Mr. Thomas Cooper on grassy plains in Natal, and brought by him to this country in a living state. We have had it for some time at Kew, but it has not yet flowered with us. The drawing was made by Mr. Wilson Saunders from a plant that flowered at Reigate.

Descr. Acaulescent, the rosette surrounded by three or four lanceolate membranous rudimentary leaves. Produced leaves six or eight, distichous, suberect, linear-subulate from a dilated deltoid clasping base, tapering to a long point, a foot or more long, deeply channeled down the face, acutely keeled down the back, firm, and hardly at all fleshy in texture, green, spotted with white, especially in the lower part, furnished with a narrow pale horny border, and copious spreading minute linear teeth, which are larger towards the base of the leaf. *Peduncle* stout, terete, a foot or a foot and a half long,

AUGUST 1ST, 1878.

bearing a few small lanceolate-deltoid bract-like leaves in the upper part. *Flowers* twelve to twenty-five, arranged in a dense simple subcorymbose raceme; pedicels ascending, the lower ones above an inch long; bracts large, persistent, lanceolate, acuminate. *Perianth* tubular, reddish-yellow, with a green tip, an inch and a quarter or an inch and a half long; tube very short, campanulate; segments equal, lanceolate. *Stamens* and *style* included. Capsule about an inch long, with three acute firm lanceolate valves.—*J. G. Baker.*

Figs. 1 and 2, portion of a leaf; 3, a single flower with its pedicel and bract; 4, a flower in a later stage; 5, inner and outer segments of the perianth; 6, a flower with the segments of the perianth cut away; 7, a single stamen; 8, style and stigma:—*all life-size.*



W. Fitch, del. et lith.

Vincent Brooks Day & Son, Imp.

ALOE (GASTERIA) CROUCHERI.

Mr. Croucher's Gasteria.

Nat. Ord. ASPHODELEÆ.—HEXANDRIA MONOGYIA.

Gen. Char. (*Vide supra*, TAB. 5210.)

ALOE (*Gasteria*) *Croucheri*; acaulis, foliis patulis elongato-lingulatis mucronatis inæquilateraliter trigoni angulis albo-aculatis cartilaginis denticulatis, supra concavis subtus oblique convexis lævibus maculis ovalibus albis sæpe ocellatis notatis, racemis elongatis late paniculatis multifloris, perianthis elongatis teretibus curvis medio leviter contractis roseis superne albis viridi striatis, segmentis parvis rotundatis erosis.

This, the handsomest *Gasteria* of the kind that has hitherto flowered at Kew, is named after the intelligent foreman of the propagating department, Mr. Croucher, under whose care the succulent plants of the Royal Garden are placed, and to whose zeal and especial love for this class of plants the collection owes much of its value and interest. It is closely allied to *A. candicans*, Haworth; but besides differing in colouring of the foliage, in the copiously branched, dense-flowered inflorescence, in the much larger flowers with the tube ventricose, and white with green stripes above the middle, it is in every way a handsomer species. In many respects it resembles even more closely the *A. acinacifolia*, Jacq. (Tab. Nost. 2369), but that has more attenuated leaves, and the supplementary keel of the leaf, which is on the right-hand side of the upper surface of the leaf, in *A. acinacifolia*, is on the left in *A. Croucheri* (on the right in the plate, owing to an oversight in not reversing the drawing when it was transferred to the stone).

I have followed the usual practice in regarding *Gasteria* as a division of *Aloe*, but I suspect that it will prove to be as

good a genus, both in habit and floral characters as most of *Liliaceæ*.

Aloe Croucheri has been long cultivated at Kew; its origin is unknown.

DESCR. Stemless. *Leaves* numerous, spreading in all directions and recurved, forming a dense rosette, one foot long by three inches to three and a half inches broad at the base, gradually narrowed upwards to a suddenly rounded tip terminating in a hooked mucro, three-fourths of an inch to one inch in thickness; surface smooth, dark green, covered with oblong whitish spots, which have often a green eye, upper surface broadly channelled, with the supplementary keel on the left (to the right in the plate by an error), margins cartilaginous, spotted with white, minutely toothed. *Scape* including the panicle two feet to two and a half feet high, much branched above. *Racemes* numerous, eight to ten inches long, curving upwards; bracts setaceous. *Flowers* very numerous, pendulous, two inches long, pedicels one half inch long, *Perianth* tubular, cylindric, slightly curved, terete, somewhat contracted in the middle, slightly inflated above and below it; lower half pale rose-coloured; upper half white, with green veins running downwards from each of the short broad erose perianth segments. *Stamens* yellow, slightly exserted.—*J. D. H.*

Fig. 1, Reduced sketch of plant; fig. 2, portion of leaf, and fig. 8, portion of a raceme, both of nat. size;—fig. 4, flower; fig. 5, ovary;—both *magnified*.



ALOE CYMBIFORMIS. TENDER-LEAVED
ALOE.

Class and Order.

HEXANDRIA MONOGYNIA.

Generic Character.—*Vid. Num.* 765

Specific Character and Synonyms.

ALOE *cymbiformis* (*acaulis; parviflora; brevifolia*) foliis sub
rosaceo-multifariis, elliptico-obovatis cum acumine,
depressis, subtus carinato-convexis, integerrimis, nudis,
teneris, succulentis; corolla subventricoso-cylindrica,
recurvato-bilabiata, pedicello et organo ter longiore.
Stigmata subfessili, subtrigono-capitato. *G.*

ALOE *cymbiformis*. *Haworth on Aloe. Linn. Transf. v. 7. p. 8. n.*
10.

This very distinct species of ALOE was, we believe, first noticed by Mr. HAWORTH, in the tract above quoted; where it is said to have been introduced from the Cape of Good Hope, by Mr. MASSON, and, as we suppose, some years back, being now pretty common in our collections; requires the same treatment as ALOE *retusa* of No. 455 of this work, to which it approaches the nearest of any of the genus known to us. Its name (with rather too much latitude by the way) is taken from the leaves. The raceme is many-flowered and distant; the corolla ascendent and six-parted quite to the base into narrow, lorate, somewhat tapered, obtuse segments; style scarcely any; bractes far longer than the pedicles and nearly equal to the corolla; leaves scarcely two inches long and several times shorter than the scape; the other distinctive characteristics are fully given in the specific character.

Our drawing was taken from a plant in Messrs. MALCOLM and Co.'s greenhouse at Kensington. *G.*



TAB. 6071.

ALOE (APICRA) DELTOIDEA.

Native of South Africa.

Nat. Ord. LILIACE.X.-Tribe AGAPANTHEA.

Genus ALOE, Linn.; (Endl. Gen. Plant., p. 143).

ALOE (Apicra) *deltoidea*; robusta, caulescens, foliis $\frac{3}{4}$ –1-poll. longis quinquefariis confertissimis horizontalibus crassis deltoideo-ovatis acuminatis pungentibus supra planis subtus convexis carinatis marginibus planiusculis carinaque superne eroso-serrulatis luride viridibus lævissimis, racemo spicæformi elongato flexuoso multifloro, pedicellis brevissimis, bracteolis deltoideo-lanceolatis pedicellum superantibus, perianthii erecti tubo $\frac{1}{3}$ -pollicari oblongo-cylindraceo virescente lobis brevibus late obovatis sub-2-lobis erosio albis ter longiore, staminibus inæquilongis inclusis, antheris brevibus, ovario lineari-oblongo, stylo brevicurvo.

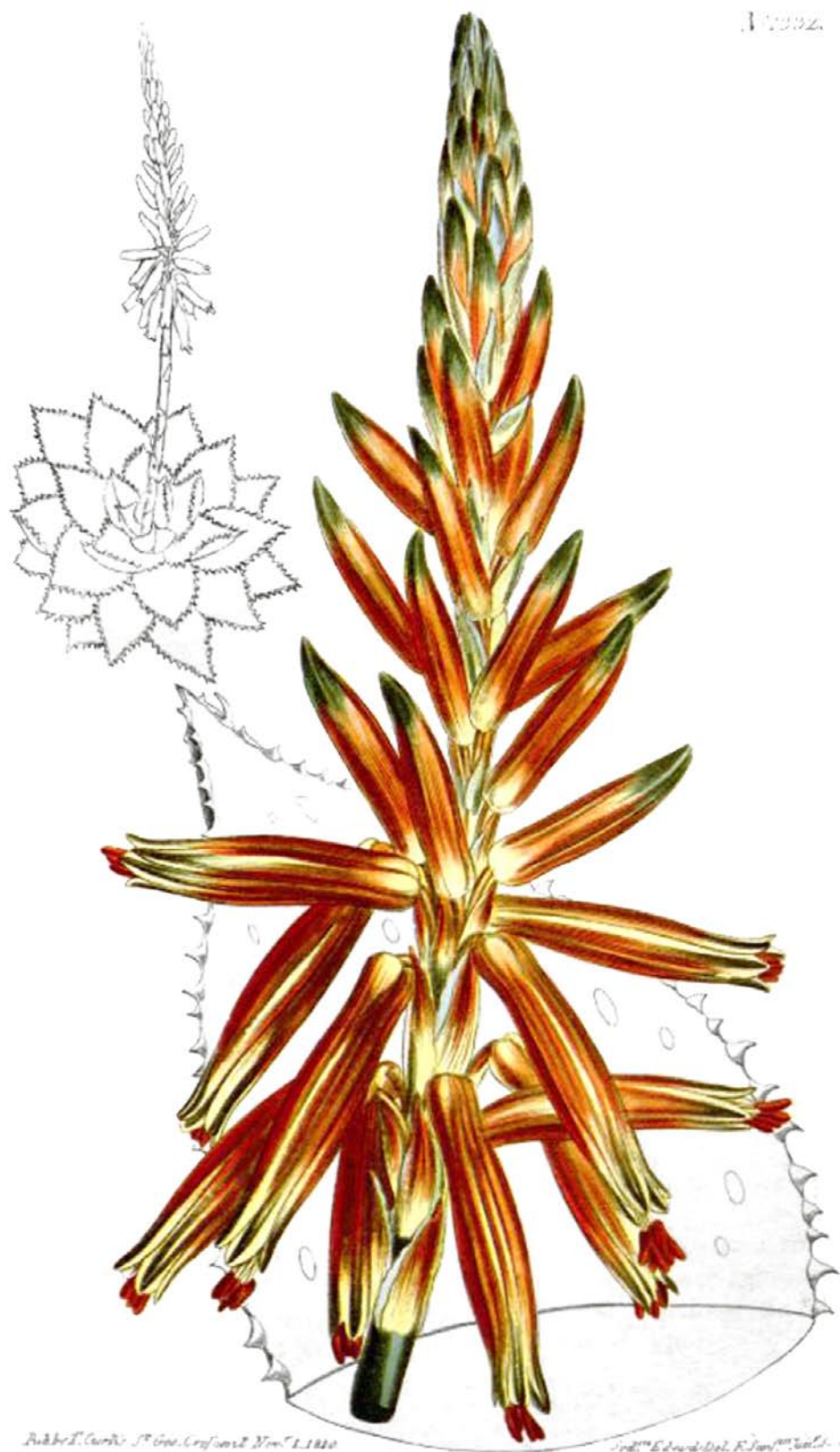
This singular succulent belongs to the same section of Aloe with *A. foliolosa* (Tab. nost. 1352), *pentagona* (Tab. nost. 1338), *spirella*, *imbricata* (Tab. nost. 1445), *spiralis*, etc., of Haworth, which are all closely allied, having 5-fariously densely imbricating leaves, that clothe the stem throughout, and terminal racemes of erect flowers, with an oblong tube and short segments. It differs from the first-named of these chiefly in size, and in the leaves not being spirally disposed except on the young shoots, though I should much doubt this character being of any value. It has long been cultivated in the Royal Gardens, where there is no record of its introduction. The perfect regularity with which the leaves are superposed in five series, and the columnar stem, render it a very striking object in the greenhouse. It flowers in May, and is easily propagated by offshoots from the base of the stem.

DESCR. *Stem* strict, erect, wholly clothed with leaves from the very base upwards, emitting stout cylindric roots, and surculi from the base; diameter across the leaves two inches. *Leaves* three-quarters to one inch long, most densely 5-

DECEMBER 1ST, 1873.

fariously imbricate, quite horizontal, deltoid-ovate, acuminate, pungent, deep shining green, quite smooth and glabrous, upper surface nearly flat, under convex with a slight keel, margins thick and flattened, the edges of the margin as well as the keel beyond the middle are minutely serrulate. *Raceme* spiciform, a foot long; peduncle and rachis stout, cylindric, slightly compressed towards the base, light-brown, glaucous, with two or three scattered ovate-lanceolate bracts. *Flowers* lax, very numerous, erect, one-third inch long, greenish-white; bracteole deltoid, much exceeding the very short pedicel, appressed to the perianth, greenish-white. *Perianth-tube* cylindric-oblong, light green, almost terete; limb of six short broad obovate obscurely two-lobed and erose segments. *Stamens* included, unequal; anthers shortly oblong. *Ovary* subcylindric, style curved.—*J. D. H.*

Fig. 1, Back, and 2, front, of a leaf; 3, transverse section of do.; 4, flower pedicel and bracteole; 5, vertical section of perianth:—*all magnified.*



Robert L. Corbin, St. Geo. Canyon, Nov. 1, 1910

Prof. E. Howard, Del. R. Inst., Wash. D. C.

ALOE DEPRESSA. SHORT-LEAVED
PERFOLIATE ALOE.

Class and Order.

HEXANDRIA MONOGYNIA.

Generic Character.—*Vid. Num.* 756

Specific Character and Synonyms.

ALOE *depressa*; (*caudex brevis crassus vel totus foliatus vel deorsum denudatus; flores e majoribus, trigone tubulosi, recti, penduli;*) foliis ambientibus, divaricatim patentibus, ovato-acuminatis, brevibus, e flavo-virentibus glauco rore obnubilatis, rigido-crassis, succulentis, dentibus acutis albido-cartilagineis remotius margine et fultus finem versus armatis, aliorumque rudimentis vagis macularum facie in utraque pagina parcissime confersis; racemo spicatum elongato, parco, erecto; pedicellis erectis bractæas subæquantibus corolla duplo vel ultra brevioribus; staminibus inclusis. *G.*

ALOE *depressa*. *Haworth. Linn. Transf.* 7. 16. n. 33.

A. perfoliata. v. *depressa*. *Hort. Kew.* 1. 467.

A. perfoliata. *ξ. Linn. Sp. Pl. ed. 2. v. 1. 458. Willd. Sp. Pl. 2. 186.*

A. Brevioribus. *Mill. Dict. ed. 8. n. 8.*

A. foliis amplexicaulibus utraque spinosis floribus spicatis. *Mill. Dict. ed. 7. n. 8.*

A. africana caulescens foliis glaucis brevissimis, foliorum parte interna et externa nonnihil spinosa. *Comm. Præhud.* 72. (*nec uti plerisque 71.*) *tab. 21. sine fl.*

Stem simple; *leaves* about two inches broad at the base, five long; *corolla* pale red, greenish towards the end. MILLER in his Dictionary, under the head ALOE, has evidently committed some blunder concerning the eighth and sixteenth species.

species. He has quoted the same synonym to both; while the specific character of each is reciprocally reverted by the description in the subjoining observation: we have adopted that, the specific character of which applies to our plant, as have the editors of the Hortus Kewensis. Mr. HAWORTH has quoted the one, of which the description in the observation only is applicable.

Native of the Cape of Good Hope. Blooms in the summer. We are obliged to Mr. HAWORTH for the present specimen. G.



(1975)

ALOE FEROX. GREAT HEDGE-HOG ALOE.

Class and Order.

HEXANDRIA MONOGYNIA.

Generic Character.

Cor. erecta, ore patulo, fundo nectarifero. Filam. receptaculo inserta.

Specic Character and Synonyms.

ALOE *ferox*; caule arborescente foliis, perfoliatis undequaque spinosis, staminibus corolla duplo longioribus. *Pl. Grass.* 32. *Hort. Kew. ed alt.* 2. p. 293. *Persoon Syn.* 1. p. 378. *Lam. Encycl.* 1. p. 87.

ALOE *ferox*; foliis ovato-cuneiformibu rigidiusculis glaucis; paginis præcipue inferiore regulariter spinosissimi. *Haworth in Lin. Soc. Tr. v.* 7. p. 21. *Ejusd. succulent.* p. 76.

ALOE *perfoliata* δ . *ferox*; foliis amplexicualibus nigricantibus undique spinosis. *Hort. Kew. ed. I* 1. p. 467. *Mill. Dict.*

ALOE *africana* caulescens, foliis glaucis caulem amplexantibus. *Commel. prælud.* p. 70. t. 19?

The GREAT HEDGE-HOG ALOE is a very old inhabitant of our greenhouses, and is the loftiest of the whole genus, sometimes reaching, Mr. HAWORTH says, to the height of nearly twenty feet. But although there are many old plants in the country, it has been very rarely known to flower; so rarely, that we do not remember to have heard any one say that they had seen it in this state, nor does it appear that even Mr. HAWORTH himself, who has paid so much attention to this tribe of plants, had ever seen it in blossom at the time of his publication. The Hortus Kewensis fixes April and May

May as its flowering season, but probably it has never blossomed there: M. DE CANDOLLE says it flowers in the winter. Our drawing was taken in January last, from a plant in the possession of THOMAS HITCHEN, Esq. of Norwich, whose liberality in sending us an excellent drawing, with specimens of the flowers and foliage, we thankfully acknowledge. The uncoloured engraving represents, upon a reduced scale, the whole plant, which is nearly six feet high, the trunk below the leaves being three feet: the coloured part, a portion of one of the upper leaves and one of the three branches of the flowering stem of the natural size; a separate flower is given in its most fully expanded state, by which it may be observed, that the generic character of an *expanded mouth* did not hold good, in our specimen at least; the other figure represents a flower on its first opening, forcibly displayed to shew the germen, style, and the filaments, which last are only half the length they afterwards acquire. They appeared to us to be really hypogynous, or attached to the receptacle below the germen, and not to the petals; but in this state the inner petals embrace the filaments so closely, that they can hardly be pulled off without bringing these away with them. The leaves produce spines from every part, but sharper, longer, stouter, and more curved along the margins, and in a line along the middle of both the upper and under side. They abound with a yellowish juice, which concretes into a gum-resin, intensely bitter, without the nauseous taste of the hepatic aloes.

Mr. HITCHEN informs us, that he has two of these plants, nearly of the same size, which he supposes are at least forty years old. He kept the one in the house, and exposed the other to the open air during the summer months; the latter of these, invigorated by free ventilation, produced its flowers in the winter, but the other has not bloomed. Mr. HITCHEN is probably right in his conjecture, that these plants would flower more frequently if they were not kept at all times under cover. We have made the same observation in speaking of the *CACTUS triangularis*, No. 1884.

ALOE ferox is a native of the Cape of Good-Hope. Cultivated by MILLER in 1759.

N^o 1352.



Wells: Det. E. S. W. form. Sc.

Pubby J. Carter Watson. D.

ALOE FOLIOLOSA. SMALL-LEAVED ALOE.

*Class and Order.*

HEXANDRIA MONOGYNIA.

Generic Character.

Infloresc. seorsim bracteata. *Cal.* o. *Cor.* infera, tubuloso-fexfida vel hexapetaloideo-partita in tubum connivens, ore summo regulari patula vel recurvatim bilabiata, carnosula firma, directa flexave, erecta pendulove-cernua; laciniis ligulatis, exterioribus interiores alternas isometras bisve longiores imbricantibus. *Stam.* immediate hypogyna, deflexo-affurgentia, longitudine alternantia, tubo æqualia vel exserta. *Fil.* tereti-gracilescencia (*in quibusdam statim post anthesin flexuose detensa velutque articulosa*). *Anth.* erectæ, oblongæ. *Stylus* exsertus vel subnullus trifidus. *Stigm.* simplex, vel 3 minuta replicata. *Capf.* erecta, membranacea, scariosa, diversimode oblongata, rotunde acuteve trigona, venosa; triloc., trivalv., valvis medio septigeris. *Sem.* numerosa, biserialia, subrotundo-complanata alata, angulosave angulis membranacee extenuatis. *G.*

OBS. Plantæ perennes sempervirentes stoloniferæ alterne indivise ac epetiolate crassifoliæ; rhizoma nunc exiliter fusiforme neque ex humo emergens, nunc in caudicem palmoidee arboreum ac stolonizanter ramosum assurgens; folia succosa, convolute amplexicaulia, plurifariam disposita, modo bisaria a plano obversa, rarius decussata; imbricatim ambientia, modo equitantia, raro distantia; radicalia, vel inferiorum casu excelsæ terminalia, nunc axim a summo ad imum compade loricantia; squamiformia vel supra tres pedes longa; pulvinatim laxata vel hinc gibbosa vel plano-convexe depresso; ab infra latioribus cuspidatim attenuata, nunc linguiformia rotundo fine terminata; lævia, vel tuberibus verruculis papillisve cartilagineis in parte vel totaliter scabrata aut tantum marginata; nuda, vel spinis mollibus innocuis vel durissimis pungentibus quadantenus aut per totum muricata, duntaxatve ciliata; caulibus interfoliaceis simplex vel ramosus, foliolis bractæformibus vagis perpauca vel multis squamatus; racemus (ut et partiales) umbellatim contractus, vel spicatum pyramidatus, vel diffuse elongatus; pedicelli subnulli corollamve æquantes, uniflori, erecti refractave collapsi, bractea ipsis longiore bisve brevior excepti. A contermina TRITOMA dignoscatur capsula nequaquam cartilaginea nec ovata, semnibus marginatis, corolla carnosiore neque (æquatis imbricationis rugis) explicata, staminibus declinato-inflexis, foliorum insuper habitu haudquaquam scirpoidee gramineo. *G.*

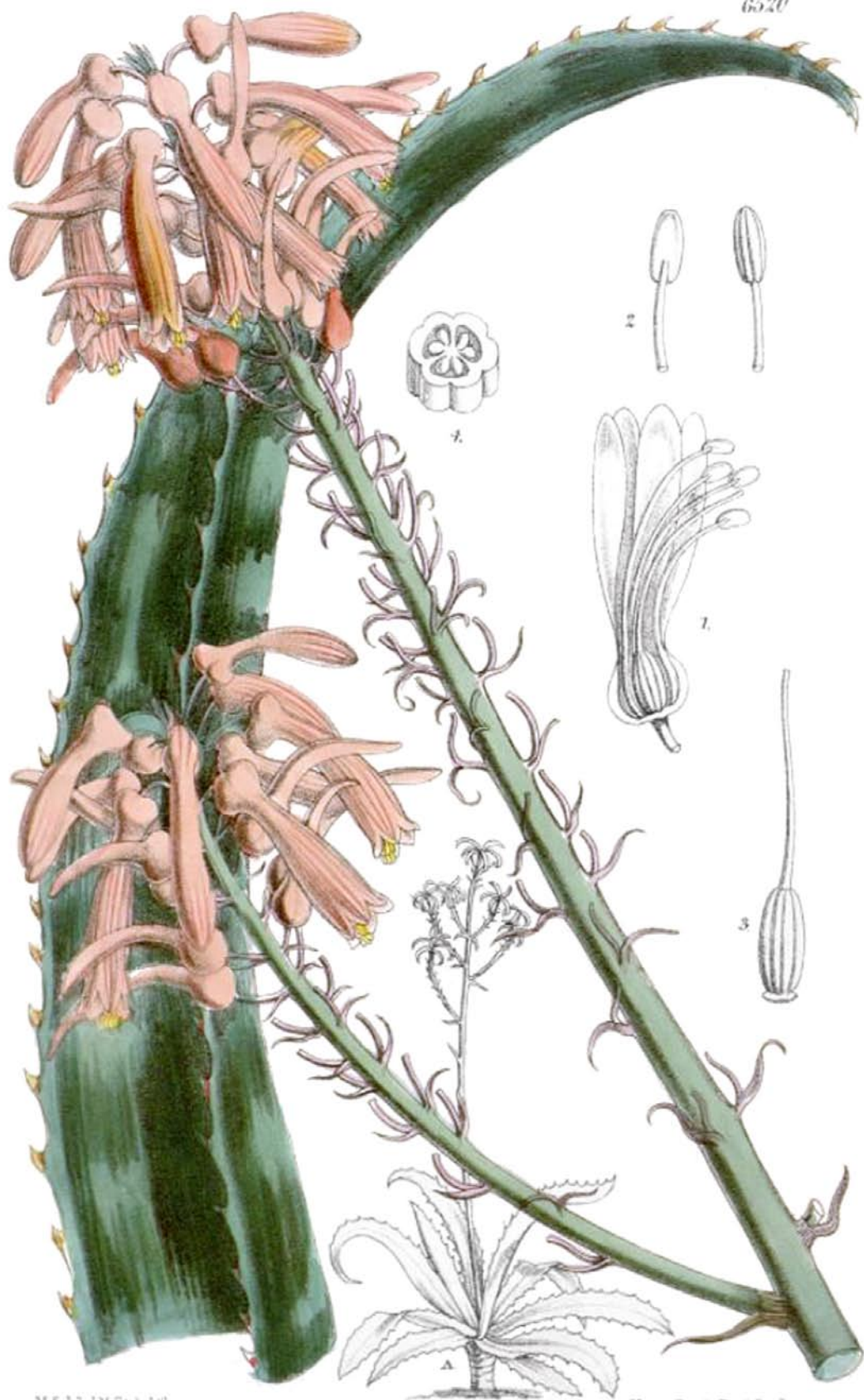
Specific

Specific Character and Synonyms.

ALOE *foliolosa*; (*caudex totaliter imbricato-foliatus; flores e minoribus, erecti, regulares;*) foliis plurifariam ambientibus, squamiformibus, ovato-acuminatis, transversim latioribus, parum (*pro genere*) crassis, rigidis, glabris (*junioribus perobscure denticulatis*), supra patulis, caudicem a summo ad imum squarroso-loricantibus; caule simplici, filiformi, flexili; racemo laxo; pedicellis corolla duplo brevioribus; corolla recta, cylindracea rotundatis angulis, ore brevissimo regulari patula; staminibus inclusis. G.

ALOE *foliolosa*. Haworth. Linn. Transf. 7. 7. n. 3. Hort. Kew. ed. 2. v. 2. 298.

Native of the Cape of Good Hope, from whence it has been introduced into our gardens, by Mr. MASSON, since the publication of the Hortus Kewensis. The *leaves* are the smallest and thinnest of any species known to us, of a dark green colour. Nearly allied to *spiralis*. Is propagated with more difficulty, but blooms more freely than that. May be kept in the common greenhouse. Had never been distinctly recorded by any author preceding Mr. HAWORTH, to which gentleman we are indebted for the specimen. G.



M. S. 342, J. N. Fitch Lith.

Vincent Brooks Day & Son, Imp.

L. Reeve & Co. London

TAB. 6520.

ALOE GREENII.

Native probably of the Cape.

Nat. Ord. LILLIACEÆ.—Tribe ALOINEÆ.

Genus ALOE, *Linn.*; (*Kunth Enum.* vol. iv. p. 492.)

ALOE *Greenii*; breviter caulescens, caule simplici, foliis 10–12 dense rosulatis lanceolatis sesquipedalibus viridibus obscure verticaliter lineatis et maculis copiosis oblongis albidis confluentibus irregulariter transversaliter seriatis decoratis, pedunculo subpedali, panicule ramis strictis 5–7, racemis oblongis vel demum cylindricis, pedicellis flore subtriplo brevioribus, bracteis lanceolatis acuminatis pedicello subæquilongis, perianthii pallide rubri 15 lin. longi tubo medio insigniter constricto, segmentis oblongis tubo 2–3-plo brevioribus, genitalibus demum perianthio subæquilongis.

A. *Greenii*, *Baker in Journ. Linn. Soc. ined.*

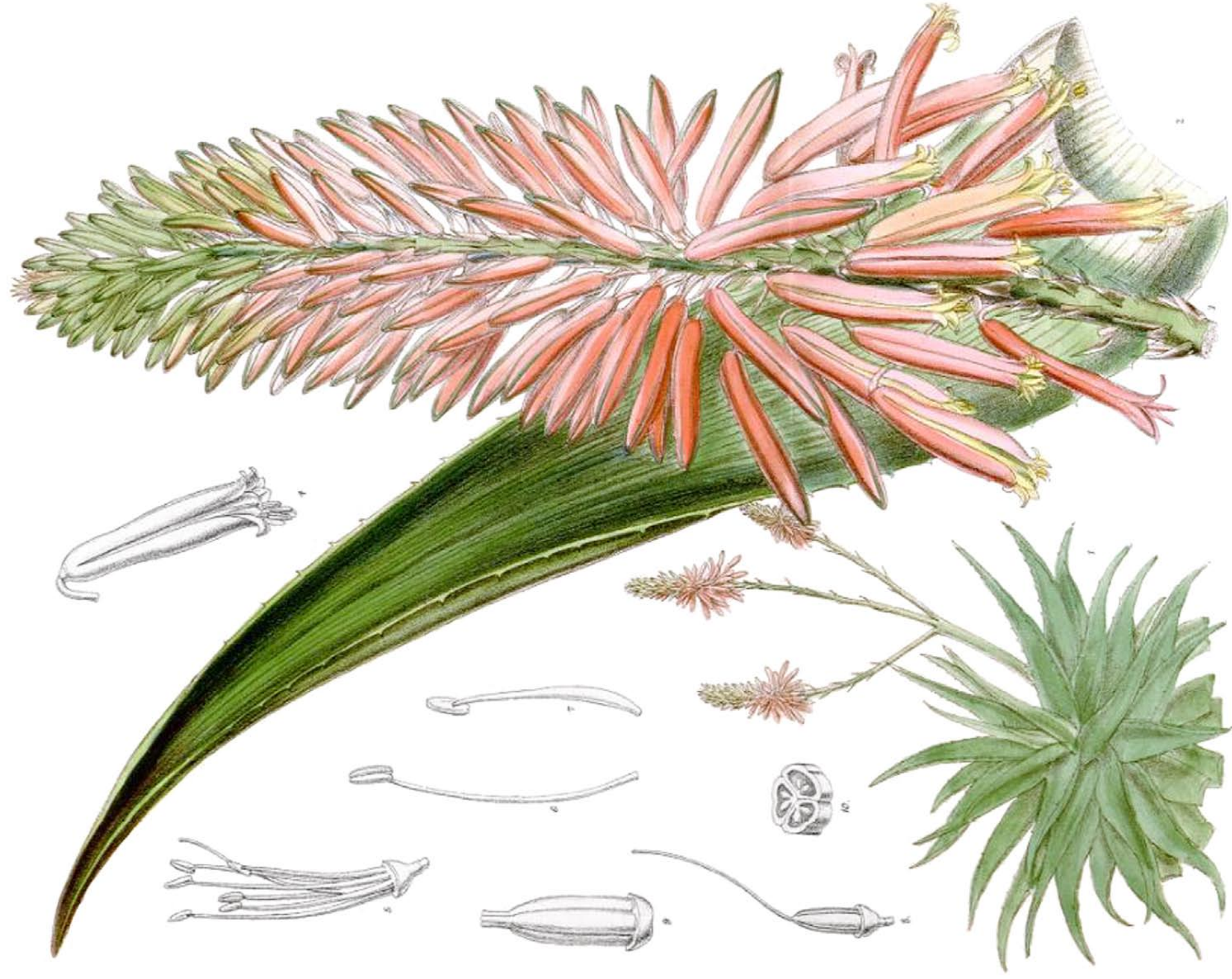
This is a well-marked new species of *Aloe* of the group *Pictæ*, which we have for some time cultivated at Kew. All that I can make out for certain about its history is that it was received under the name which I have adopted from Mr. Wilson Saunders, and that this name was given to it by Mr. T. Cooper, but that it is not one of the plants which the latter collected in his travels in Cape Colony, which yielded so many interesting discoveries in this set of plants. In the *Pictæ* group of Aloes the present plant may be readily distinguished by its elongated racemes and by the strong construction of the perianth-tube at the middle. Our plate was drawn from a specimen that flowered in the Succulent House at Kew in October, 1879.

DESCR. Well-grown plants furnished with a short simple *stem* below the rosette of leaves. *Leaves* twelve or fifteen in a dense rosette, lanceolate, fifteen to eighteen inches long, three inches broad in the lower part, narrowed gradually from two-thirds of the way down to a long point, flat in the lower half on the face to a late stage, a quarter or a third of an inch thick in the centre, bright green, with

OCTOBER 1ST, 1880.

obscure vertical whitish lines and broad irregular transverse bands of confluent oblong whitish spots, the crowded deltoid-cuspidate ascending marginal prickles an eighth or a sixth of an inch long, connected by a very narrow horny line. *Peduncle* stiffly erect, about a foot long. *Panicle* about as long as the peduncle, with five or seven branches; racemes oblong or finally oblong-cylindrical, four to nine inches long, three inches in diameter when fully expanded; lower pedicels about half an inch long; bracts lanceolate acuminate, as long as the pedicels. *Perianth* pale red, an inch and a quarter long; tube globose at the base and very much constricted at the middle; segments oblong, a third or half as long as the tube. Longer *stamens* and style finally as long as the perianth. *Style* twice as long as the oblong ovary.—*J. G. Baker.*

A. Whole plant, *much reduced*. Fig. 1, a flower, cut open; 2, stamens, showing back and face; 3, pistil; 4, horizontal section of ovary:—*all magnified.*



TAB. 6863.

ALOE HETERACANTHA.

Native country unknown.

Nat. Ord. LILIACEÆ.—Tribe ALOINEÆ.

Genus ALOE, Linn.; (*Benth. et Hook. f. Gen. Pl.* vol. iii. p. 776.)

ALOE *heteracantha*; caule brevissimo simplici, foliis 15–30 dense rosulatis lanceolatis pedalibus obscure verticaliter lineatis parce irregulariter albo maculatis facie sæpe lineis 2 elevatis verticalibus percursis margine inermibus vel aculeis paucis inæqualibus deltoideis armatis, floribus racemoso-paniculatis, pedunculo valido ancipiti, racemis densis cylindricis, pedicellis flore 2–3-plo brevioribus, bracteis ovatis pedicello brevioribus, perianthio cylindrico splendide rubro tubo brevissimo, genitalibus perianthio requilongis.

A. *heteracantha*, Baker in *Journ. Linn. Soc.* vol. xviii. p. 161.

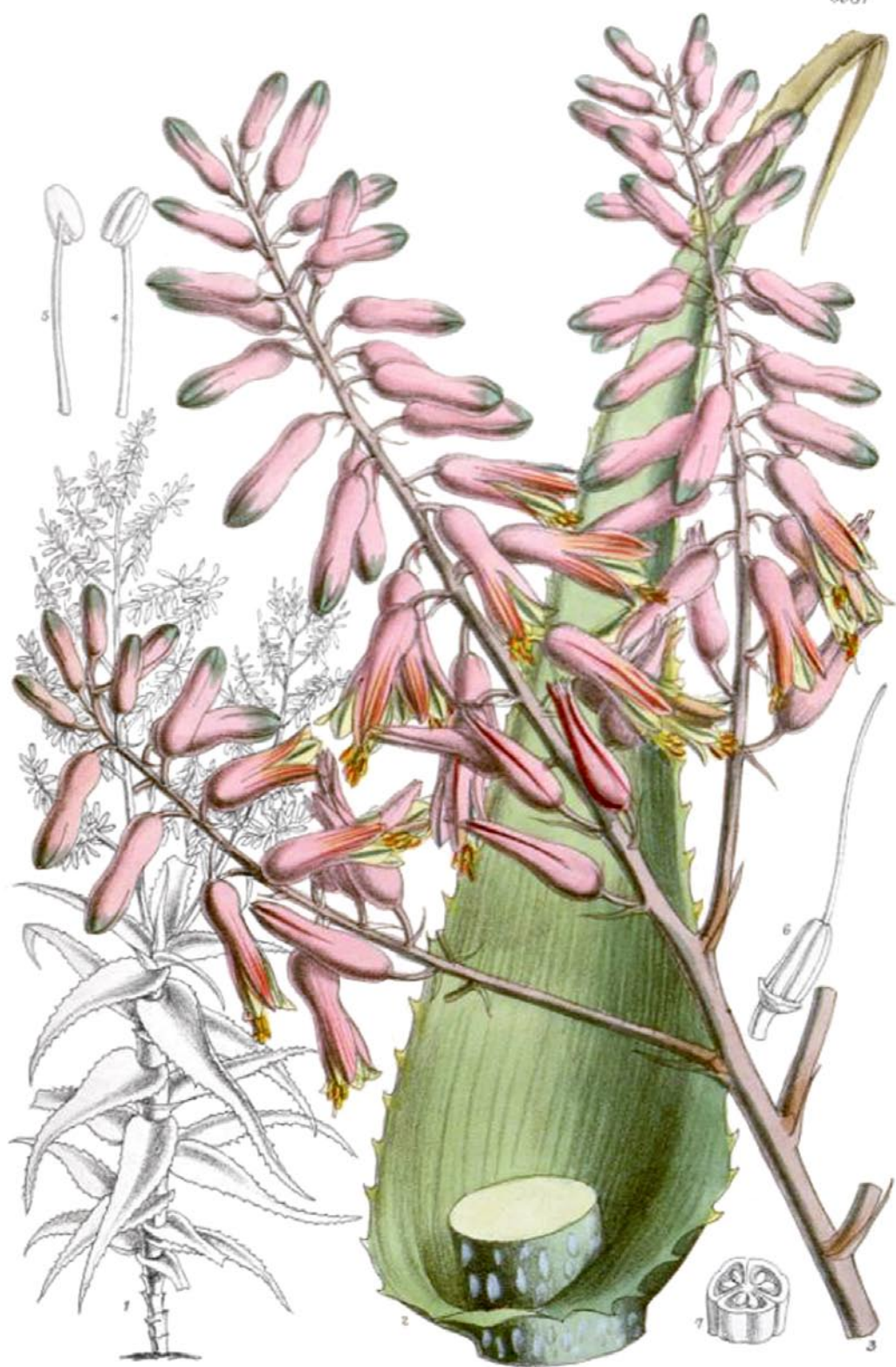
This is an Aloe which we have had for a long time at Kew, but have never before flowered, and of which the flowers have never been described. Its history is not clearly known, but it is believed to have been brought from the Jardin des Plantes at Paris many years ago by Mr. Cooper. It has been thought that it might be identical with the *Aloe inermis* of Forskahl, an inhabitant of Arabia Felix, but of this no specimens are known to exist, and the description is extremely incomplete. Mr. Brown tells me that it has also been flowered at Reigate in the open air by Mr. Cooper, and that when so grown the leaves are much smaller than in our plant, and strongly tinted with red-brown. Our plant was grown under a subtropical temperature, and the drawing was made in June, 1885.

DESCR. *Stem* simple, very short. *Leaves* fifteen to thirty in a dense rosette, ascending, lanceolate, half to one foot long, one and a half to two and a half inches broad low down, narrowed gradually to the concave apex, green or in exposure tinted with red-brown, obscurely vertically lineate towards the base, often with a few irregular small whitish spots, and often marked down the face with one or two faint raised vertical ribs, usually furnished with a few irregular spreading deltoid prickles on the margin. *Inflores-*

MARCH 1ST, 1886.

cence three feet high in the specimen drawn, consisting of three branches; main peduncle very stout, ancipitous, a foot long below the lowest branch; racemes dense, cylindrical, half a foot or a foot long, three inches in diameter; pedicels ascending, cernuous at the tip, the lower half or three-quarters of an inch long; bracts ovate, acute, shorter than the pedicels. *Perianth* cylindrical, an inch and a quarter or an inch and a half long; tube very short; outer segments bright red; inner whitish, with a red keel. *Stamens* as long as the perianth; anthers oblong, reddish-yellow. *Style* longer than the ampullæform ovary, reaching to the tip of the perianth-segments.—*J. G. Baker.*

Fig. 1, The whole plant, *much reduced*; 2, leaf, *natural size*; 3, raceme, *natural size*; 4, a single flower; 5, flower, with perianth-segments cut away; 6 and 7, stamens; 8, pistil; 9, ovary; 10, horizontal section of ovary:—*all more or less enlarged.*



M. S. del. & lith. sculp.

Vincent. Brown. Day & Son Imp.

L. Reeve & Co. London.

TAB. 6981.

ALOE HILDEBRANDTII.

Native of East Tropical Africa.

Nat. Ord. LILIACEÆ.—Tribe ALOINEÆ.

Genus ALOE, *Linn.*; (*Benth. et Hook. f. Gen. Fl.* vol.. iii. p. 776.)

ALOE *Hildebrandtii*; caudice erecto elongato simplici. foliis lanceolatis dissitis patulis parce maculatis dentibus marginalibus parvis deltoideis. floribus in paniculam amplam pedunculo brevi ancipiti ramis multis ascendentibus laxe racemosis dispositis, pedicellis brevibus, bracteis parvis lanceolatis, perianthii segmentis lineari-oblongis tube cylindrico vix longioribus, genitalibus breviter exsertis.

This very distinct new Aloe was discovered by the late Dr. Hildebrandt in the course of those adventurous explorations of East Tropical Africa which extended from 1872 to 1877, and added very materially to our knowledge of the botany of that part of the world. For horticultural purposes it is one of the most desirable of all the Aloes, from its compact growth and the unprecedented abundance of its bright-coloured flowers. Its nearest allies are *A. consobbrina*, Salmdyck, and the little-known *A. spicata*, Haworth, of the latter of which there is a good figure in Bentley and Trimen's "Medicinal Plants," tab. 284. Dr. Hildebrandt's explorations extended from Abyssinia and Somali-land southward to the mountains of the interior opposite Zanzibar, and we do not know the exact country whence it came. Our drawing was made from a plant that flowered at Kew for the first time last summer, which was received in 1882 from the Botanic Garden of Berlin in 1882.

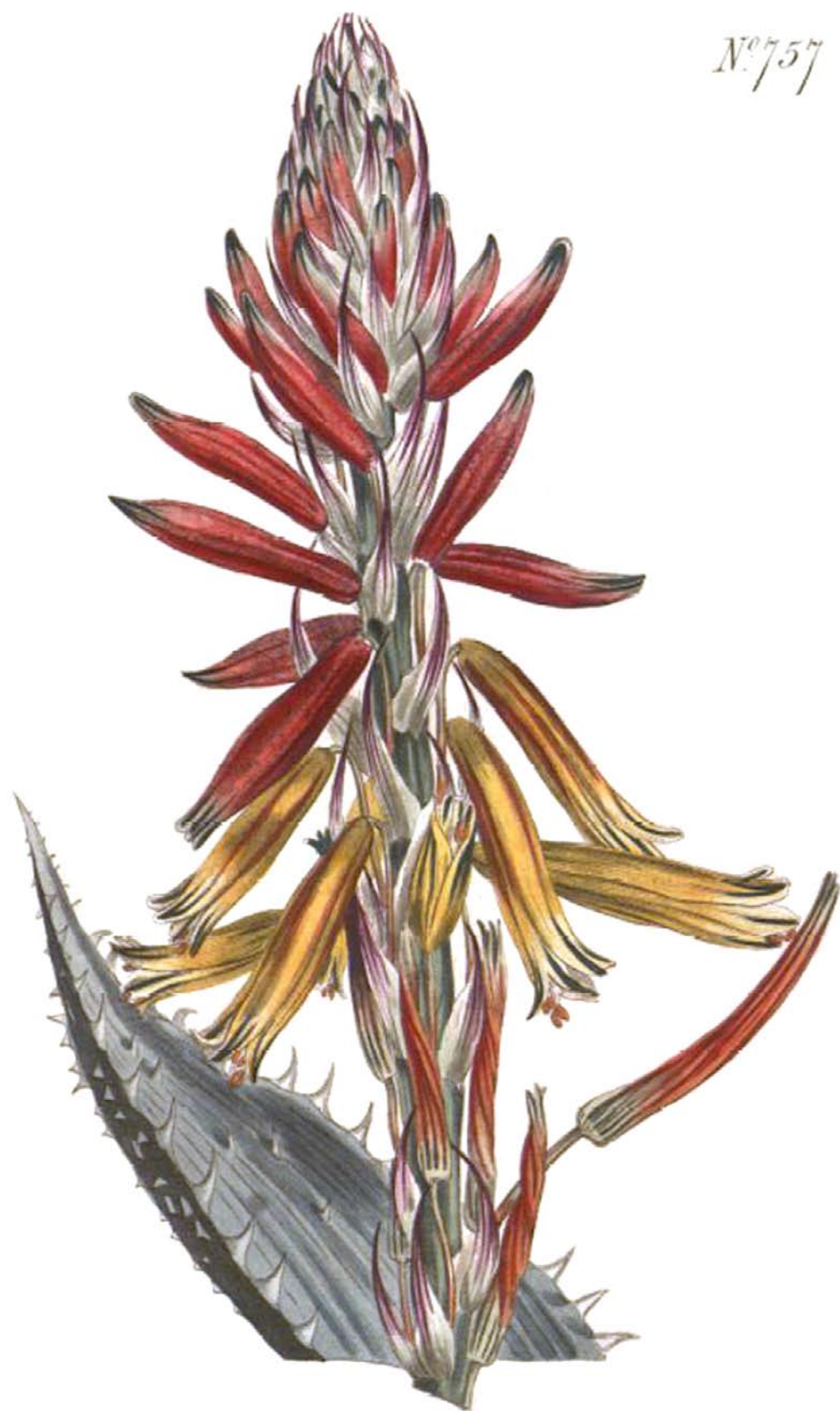
DESCR. Leafy stem simple, terete, erect, reaching a length of one and a half or two feet, and a diameter of half or three-quarters of an inch in our plant; internodes half or three-quarters of an inch long, conspicuously spotted with white. *Leaves* laxly disposed, spreading, lanceolate, six to ten inches long, one and a half or two inches broad at the

* For a detailed account of Dr. Hildebrandt's explorations reference may be made to a translation by Mr. Geo. Murray of a paper by Herr Kurtz, in Tyimen's "Journal of Botany" for 1879, p.86.

FEB. 1ST, 1888.

clasping base, tapering gradually to an acuminate point, concave on the face above the base, rounded on the back, glaucous green with a few small whiet spots, margined with small, ascending, deltoid teeth. *Peduncles* produced from the axils of the upper leaves, short, compresed, acutely angled. *Inflorescence* a lax panicle a foot and a half long, composed of ten or twelve laxly racemose ascending branches; pedicels about a quarter of an inch long; bracts small, laneeolate. *Perianth* cylindrical, under an inch long; segments linear-oblong, scarcely longer than the tube; tube and outer segments bright red; inner red-yellow, with a green keel. *Stamens* and *style* a little longer than the perianth; anthers small, oblong, yellow.—*J. G. Baker.*

Fig. 1, Whole plant, *much reduced*; 2, a leaf; 3, upper branches of the panicle, *both life-size*; 4, front view of stamen; 5, back view of stamen; 6, pistil, *all three enlarged*.



ALOE HUMILIS. SOFT-SPINED ALOE.

Class and Order.

HEXANDRIA MONOGYNIA.

Generic Character.

Cor. erecta, ore patulo, fundo nectarifero. *Filam.* receptaculo inferta.

Specific Character and Synonyms.

ALOE *humilis* (acaulis) foliis ambientibus, cæspitosis, affurgentibus, lato-fubulatis, plano convexis; spinis albis, mollibus, inermibus, undique erumpentibus; bracteis pedicellos subæquantibus; corolla cylindrica hexapetalopartita, ore patulo, reflexo. G.

ALOE *humilis*, acaulis, foliis undique inerme spinosis, adscendentibus, fubulato-trigonis, floribus cylindricis. *Decand. Pl. Gr. liv.* 7 n. 39.

ALOE *humilis*. *Willd. Sp. Pl. v.* 2. p. 187. *Thunb. Diffn.* 6. *Prod.* 61.

ALOE *perfoliata* var. *humilis*. *Sp. Pl.* 458. *Hort. Kew.* 1. 467. *Mart. Mill. Dict.*

ALOE foliis erectis fubulatis radicatis undique inerme spinosis. *Hort. Ciff.* 131. *Roy. Lugd.* 24.

ALOE *africana humilis*, spinis inermibus et verrucis obsita. *Comm. prel.* 77. t. 26. *rar.* 46. t. 46. *optime.* *Boerb. ind. alt.* 2. 130. n. 23. *Til. Hort. Pif. p.* 7. t. 6. *male.*

ALOE *africana* foliis glaucis margine et dorfi superiori parti spinosis. *Weinm. Phyt.* t. 73. a.

DESC. *Stem.* none. *Leaves* furrounding the scape tuftwise, affurgent, and often slightly incurved upwards, broad-fubulate, plano-convex, sometimes nearly trigonal, beset with white subcartilagineous softish spines; these at the edges are teethlike, regularly arranged, more numerous and perfect in shape, but in the other parts are often abortive and appearing

appearing like little white pustules. *Scape* central, upright, from half to two feet high, beset from the base with convolute, acuminate, membranous, white bractes, resembling the upper fertile ones. *Raceme* spiked, longish, not very thickset. *Pedicles* about the length of the bracte and corolla, upright. *Corolla* pendulous cylindrical, parted to the base, three outer segments narrowest and more succulent, inner ones nearly membranous, all patuloufly reflected at the mouth. *Filaments* slightly unequal, nearly the length of corolla, sub-affurgent. *Stigma* simple.

A native of the Cape of Good Hope. An old inhabitant of our gardens. Requires the same treatment as the rest of the genus.

Our drawing was taken at Messrs. GRIMWOOD and WYKES's, Kensington. G.



ALOE-HUMILIS (β). NARROW-LEAVED
STEMLESS ALOE.

Class and Order.

HEXANDRIA MONOGYNIA.

Generic Character.—*Vide Num.* 765.

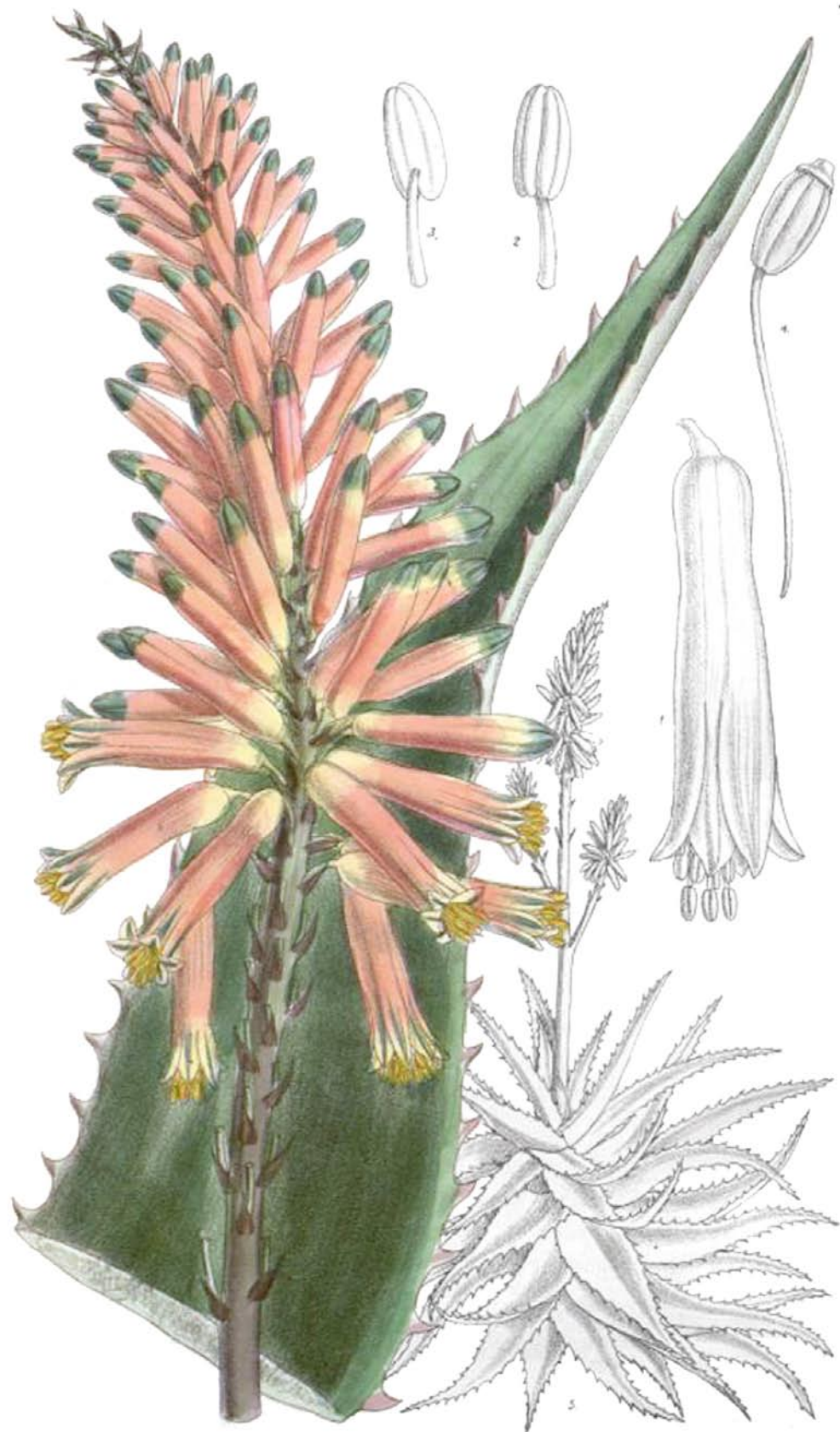
Specific Character and Synonyms.

ALOE *humilis*. *Vid. Num.* 757.

(β) floribus nonnihil splendidioribus, majoribus atque crebrioribus; foliis angustioribus, magis glaucinis, subadscenderet incurvatis. G.

ALOE *humilis* (β) incurva. *Haworth on ALOE, in Linn. Trans,* vol. 7. p. 15.

Our drawing of this beautiful variety of ALOE was taken at the Nurfery of Messrs. MALCOLMS, at Kenfington. Probably raised in our own gardens from the seeds of (α). G.



TAB. 7386.

ALOE KIRKII.

Native of Zanzibar.

Nat. Ord. LILIACEÆ.—Tribe ALOINEÆ.

Genus ALOE, Linn.; (*Benth. & Hook. f. Gen. Plant.* vol. iii. p. 776.)

ALOE, *Kirkii*; caudice brevi valido, foliis 30–40 dense rosulatis lanceolatis subpedalibus patulis viridibus brevibus immaculatis, aculeis marginalibus magnis patulis deltoideis, pedunculo stricto erecto trifurcato, racemis densis oblongo-cylindricis, pedicellis brevibus, superioribus ascendentibus, inferioribus cernuis, bracteis ovatis parvis, perianthio cylindrico rubro-luteo apice viridulo, lobis lingulatis tubo brevioribus, staminibus brevissime exsertis.

This is another new *Aloe*, sent from Zanzibar by Sir John Kirk to the Royal Gardens, Kew. It was received from him in 1881, and flowered for the first time in the Succulent House in January, 1894. It belongs to the group of true Aloes with a very short caudex, and dense rosette of unspotted leaves, of which *A. brevifolia*, *Serra*, *glauca*, and *heteracantha* are the best known garden representatives. Its nearest ally is *A. Hildebrandtii*, Baker in *Bot. Mag.* Tab. 6981, which also is a native of South-East tropical Africa.

Descr.—Caudex short, stout, erect. *Leaves* thirty to forty in a dense rosette, spreading, lanceolate, nearly a foot long, two inches broad above the dilated base, tapering gradually to the point, a quarter of an inch thick in the middle, bright green, without any spots or dots, very smooth on both surfaces; marginal teeth large, deltoid, spreading, scarcely tipped with brown in the cultivated plant. *Inflorescence* two feet long, with three branches; peduncle stiffly erect, branched at the middle; racemes dense, oblong-cylindrical, the end one nearly a foot long; pedicels short, the upper ascending, the lower cernuous;

NOVEMBER 1ST, 1894.

bracts very small, ovate. *Perianth* cylindrical, above an inch long, reddish-yellow, tipped with brown; lobes lingu-
late, rather shorter than the tube. *Stamens* finally very
shortly exserted—*J. G. Baker*.

Fig. 1, A flower; 2, an anther, front view; 3, an anther, back view; 4, ovary
and style, *all enlarged*; 5, whole plant *much reduced*.



TAB. 7624.

ALOE LEPTOPHYLLA.

Native of Cape Colony.

Nat. Ord. LILIACEÆ.—Tribe ALOINEÆ.

Genus ALOE, Linn.; (*Benth. & Hook. f. Gen. Plant.* vol. iii. p. 776.)

ALOE *leptophylla*; caudice simplici, foliis dense rosulatis recurvatis laneeolatis acuminatis pro genere tenuibus viridibus punctis et lineis albidis copiosis decoratis dentibus marginalibus crebris magnis deltoideis, pedunculo simplici stricto erecto foliis longiore, racemo congesto capitato, pedicellis longis, bracteis parvis lanceolato-deltoideis, perianthio aurantiaco tubo subcylindrico supra ovarium constricto, lobis linearibus tubo brevioribus apice viridibus, staminibus styloque breviter exsertis.

A. *leptophylla*, N. E. Brown, ex Baker in *Journ. Linn. Soc.* vol. xviii. p. 165; *Journ. Bot.* 1889, p. 44; *Fl. Cap.* vol. vi. p. 313.

This fine *Aloe* was collected by Mr. Thomas Cooper in his travels in South Africa, about the year 1860, in the province of Worcester, not far from the town of Worcester, which is about eight hundred feet above sea-level. It is nearly allied to *A. latifolia*, Haworth, but the leaves are thinner in texture than in any other species of the group *Maculatæ*, which is conspicuous for its copiously spotted leaves. The Kew plant, from which our drawing was made, was purchased from Mr. Cooper in 1897, and flowered in the Succulent House in April, 1898.

Descr.—*Stem* reaching a length of half a foot, and a diameter of two inches below the rosette of leaves. *Leaves* twelve to twenty in a rosette, recurved, lanceolate, acuminate, nine to twelve inches long, three or four inches broad, green, or tinged with purple, copiously spotted and striped with white, thinner in texture than in any of its allies; marginal teeth large, close, deltoid. *Peduncle* simple, stiffly erect, longer than the leaves. *Raceme* dense, capitate; pedicels an inch or more long; bracts small, lanceolate, deltoid. *Perianth* sub-cylindrical, an inch and a half long, bright orange-yellow, tipped with green; tube constricted above the ovary; lobes linear, shorter than the tube. *Stamens* and *style* slightly exerted.—J. G. Baker.

Fig 1, A flower; 2, front view of stamen; 3, back view of stamen ; 4, pistil. all enlarged; 5, whole plant, much reduced.

NOVEMBER 1ST, 1898.

Nº 79



Sed. Edwards del. Pub. by T. Curtis. St. Geo. Crescent Decr 11806. F. Sangier sculp.

ALOE LINGUA (α). NARROW-LEAVED
TONGUE ALOE.

Class and Order.

HEXANDRIA MONOGYNIA.

Generic Character.—*Vide* Num. 765.

Specific Character and Synonyms.

ALOE *Lingua*; (*acaulis, curviflora*) foliis distichis, basi imbricato-conduplicantibus, linguaformibus, punctulis instar aranæ cuticulæ pruinatis, variegatis; corolla subampullacea, laciniis breviter coalitis. *G. Vid. supra* Num. 838, *ubi adjicienda synonyma sequentia*

ALOE africana flore rubro, folio maculis ab utraque parte notato. *Knorr Thes Rei Herb. v. 3. A. t. 14. Comm. Hort. Amst. 2. 15. t. 8.*

ALOE africana maculata flore rubro, fecunda species. *Weinm. Phyt. Icon. t. 57.*

ALOE africana foliis linguam vitulinam exprimentibus. *Sabat. Hort. Rom. 6. t. 71. (ALOE a lingua di vitello).*

(β) foliis latioribus obscurius variegatis. *G.*

ALOE *obliqua*. *Jacq. Hort. Schænb. 4. t.*

ALOE *nigricans*. *Haworth Linn. Transf. 7. 23.*

For our observations on this species see above, No. 838. Why the flowers are described as “erecti” in most books, we are at a loss to say. *G.*

ALOE LINGUA. COMMON TONGUE-ALOE.

Specific Character and Synonyms.

ALOE *Lingua*; (e-caudicata; flores mediæ magnitudinis, curvati, penduli;) foliis coriaceo-crassis, bifariis; divaricatim reclinatis, mutuo incumbentibus, linguiformi-loratis (*modo subattenuatis*), cartilagine denticulata (*nunc parcissimne vel et omnino non*) marginatis, deorsum convoluto-equantibus; caule ramofo, laxius racemofo; pedicellis floribusque diffuse pendulis; corolla ventricoso-tubulosa, sursum sexdivisa subtrigone clausa, ore brevissime patula; staminibus inclusis. G.

ALOE *Lingua*. Thunb. *Diff. p.* 8. n. 11. *Prod.* 61. *Hort. Kew.* 1. 496. Haworth in *Linn. Transf.* 7. 13. Willd. *Sp. Pl.* 2. 189.

A. *linguæformis*. Linn. *Suppl.* 206. Mill. *Dict. ed.* 8. n. 13. *Decand. Pl. Gr.* 62.

A. *disticha*. (α.) Linn. *Sp. Pl. ed.* 2. t. 459.

(α.) foliis minoribus tuberculis margaritaceis dense et confluententer pustulatis. G. *Fig. integra in tab.*

A. *intermedia*. Haworth *Linn. Transf.* 7. 12; (*excl. Boerh.*)

(β.) foliis majoribus (*modo retusis*), guttulis albicantibus conspersis vel et istis oblitteratis. G. *Folia separatim exhibita in tab. fig.* 2, 3, 4, 5.

A. *linguæformis*. *Decand. l. c. tab.* 62.

A. *Lingua*; angustifolia. *Hort. Kew.* 1. 469.

A. *africana* flore rubro foliis maculis albicantibus ab utraque parte notato. *Com. Hort. Am.* 2. 15. *tab.* 8. Knorr, *Thef. v.* 3. *A. tab.* 14.

(γ.) foliis partim verrucosis. G.

A. *ling. verrucosa*. *Decand. l. c. tab.* 62. *alt.*

A. *africana* foliis planis conjugatis verrucosis caule et flore corallii colore. *Mart. Cent. Dec.* 1. 1.

(δ.) foliis subattenuatis, subcarinatis, verrucosis. G.

A. *Lingua*; angulata. Haworth. *l. c.*

A. *acuminata*. Lam. *Dict. Encyc.* 1. 90. n. 21.

A. *africana* flore rubro folio triangulari et verrucis ab utraque parte albicantibus notato. *Com. Hort. Amst. p.* 17. *fig.* 9.

(ε.) foliis latioribus, brevioribus, glabris; corolla obesiore. G.

A. *Lingua*. β. *crassifolia*. *Hort. Kew.* 1. 469. Willd. *l. c. Nobis supra No.* 838.

A. *nigricans*. Haworth *l. c.*

A. *obliqua*. Jacq. *Hort. Schoenb. v.* 4. *tab.* 37.

Native

Native of the Cape of Good Hope. One of the commonest ornaments of our greenhouses and parlour windows. Cultivated by MILLER. Blooms most part of the summer. We have erroneously given, in No. 979, a variety of *maculata* for a variety of this species. Propagated with the greatest facility by offsets. We are obliged to Mr. HAWORTH for the specimens of all the varieties here engraved. *G.*

NOTE.

In No. 979, we have by mistake published for a variety of *ALOE Lingua*, a plant which is more apparently a variety of the *A. maculata* of No. 765. So that the whole of that article should be expunged and the following substituted in its place. *G.*

ALOE MACULATA. β . OBLIQUA. SHORT-LEAVED
MARBLED ALOE.

ALOE maculata; (foliofo-caudescens; flores mediæ magnitudinis, curvati, penduli;) foliis coriaceo-crassis, obliquatim vel subspiraliter ambientibus, vel longioribus atque subacinaciformi-acuminatis vel brevioribus atque linguiformi-loratis, ex atro-viridibus lituris candidis marmoratim pictis, glabris (*ad lentem punctulis minutissimis impressis*), subnitentibus, modo subtus vel et utrinque carinatis. Inflorescentia omnino *Linguae*. *G.*

ALOE maculata. Thunb. Diff. n. 10. Prod. 61. Hort. Kew. 1, 469. Willd. Sp. Pl. 2. 189 Nobis supra No. 765.

(α .) foliis subacinaciformi-elongatis. *G.*

A. maculata. pulchra. Hort. l. c. Mill. Ic. 195. tab. 192. Nobis. l. c.

A. pulchra. Haworth. l. c. p. 14. n. 25. Jacq. Hort. Schoenb. v. 4. tab. 36.

A. obliqua. Decand. Pl. Gr. tab. 91.

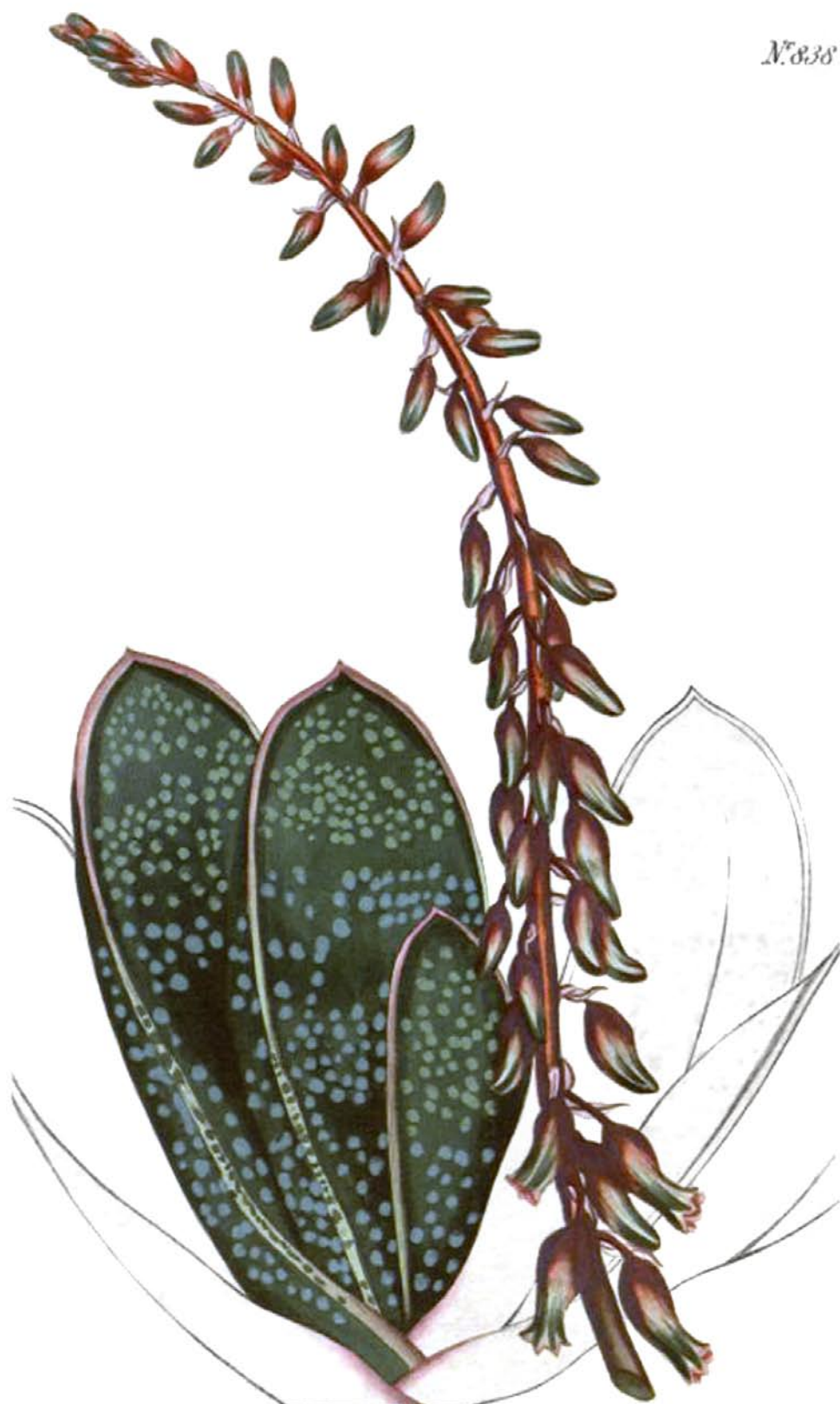
(β .) foliis brevioribus linguiformi-oblongatis. *G.*

A. maculata; obliqua. Hort. Kew. l. c. Willd l. c.

A. Lingua. α . Nobis supra No. 979.

A. obliqua. Haworth. l. c.

For further account of the species, see No. 765. *G.*



ALOE LINGUA, *var.* β . CRASSIFOLIA. THICK-
LEAVED TONGUE ALOE.

Class and Order.

HEXANDRIA MONOGYNIA.

Generic Character.—*Vide* Num. 765.

Specific Character and Synonyms.

ALOE *Lingua* (*acaulis, curviflora*) foliis distichis imbricato-conduplicantibus, linguæformibus, punctulis densissimis pruinantibus ad instar aranæ cutis, obscure variegatis; corollæ laciniis paululum coalitis. *G.*

ALOE *Lingua*. *Thunb. Diff. Prod.* 61. *Hort. Kew.* 1. 469. *Willd. Sp. Pl.* 2, 189.

ALOE *linguæformis*. *Suppl.* 206. *Decand. Pl. Gr.* 68.

ALOE *nigricans*. *Haworth on Aloe, Linn. Transf.* 7. 13.

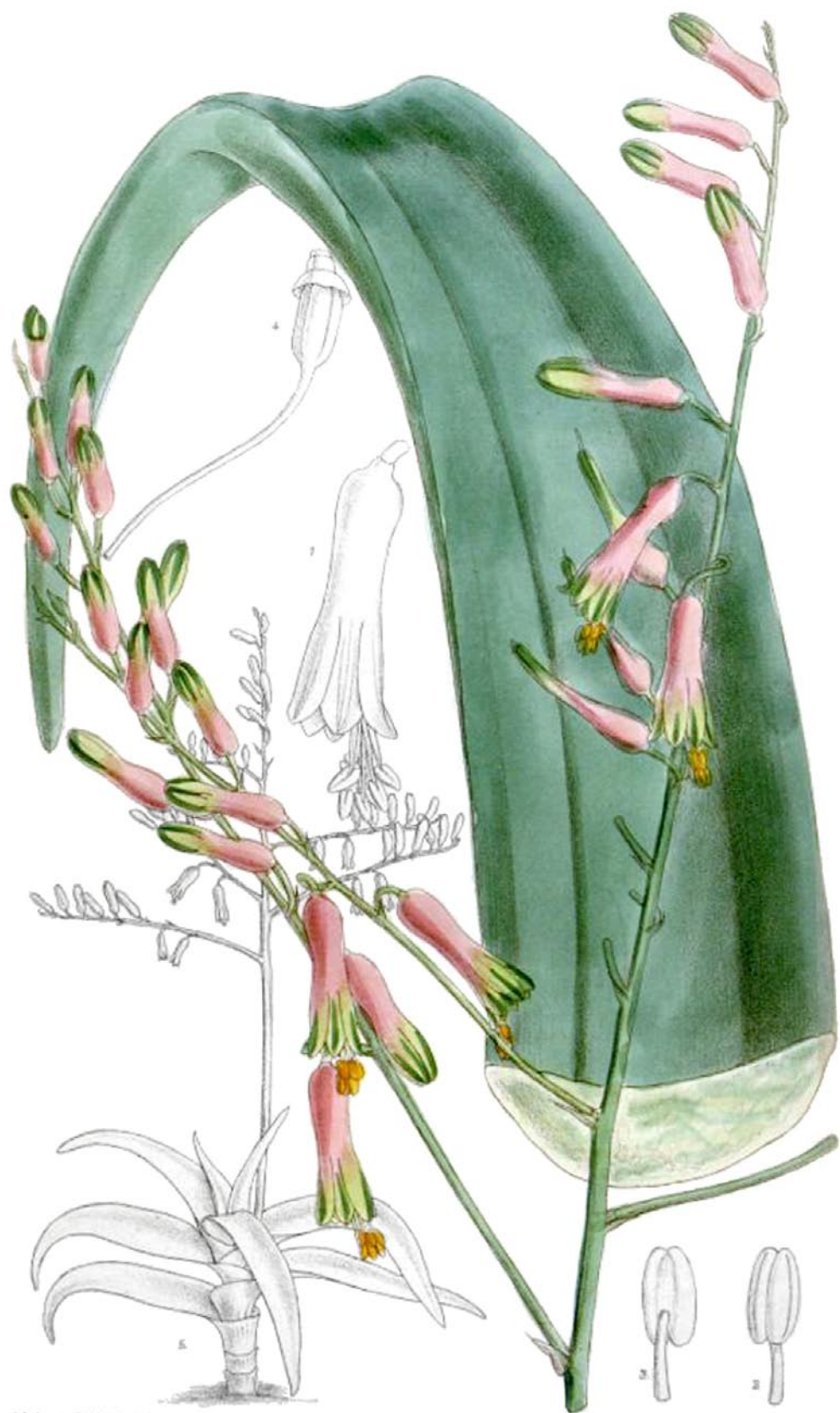
ALOE *disticha*. *Sp. Pl.* 459.

ALOE foliis foliis ensiformibus distichis patulis. *Hort. Cliff.* 132. *Hort. Upf.* 86. *Roy. Lugdb.* 86.

β . *crassifolia*; foliis latioribus brevioribus. *Hort. Kew. l. c.*

A Cape species, some of the varieties of which are said by THUNBERG to grow on the top of Roodefand mountains near the waterfall. We have never yet seen any figure of our present variety, which was cultivated by MILLER in 1731.

Our drawing was taken at Mr. MALCOLM'S Nursery, Kensington. Now common. We cannot agree with Mr. HAWORTH in making this a distinct species; not finding character sufficient to distinguish it by; his character of "*margines integerrimæ*," is not by any means constant. The outer surface of the leaves when carefully examined will be found to be dotted or chagreened in the manner of a spider's skin; they are also curiously conduplicate at their bases. This plant is propagated by offsets, is a free blower, and of easy culture. *G.*



TAB. 7448.

ALOE LUNTII.

Native of Southern Arabia.

Nat. Ord. LILIACEÆ.—Tribe ALOINEÆ.

Genus ALOE, Linn.; (*Benth. & Hook. f. Gen. Plant.* vol. iii. p. 776.)

ALOE *Luntii*; breviter caulescens, foliis densis primum rosulatis distichis demum subrosulatis ensiformibus recurvatis pallide viridibus immaculatis supra basin facie canaliculatis aculeis marginalibus obsoletis, pedunculo stricto erecto foliis longiore, racemis laxis paniculatis lateralibus patulis, bracteis minutis, pedicellis brevibus apice articulatis superioribus ascendentibus inferioribus cernuis, perianthii cylindrici tubo elongato rubello, lobis lineari-oblongis erectis tubo brevioribus, staminibus omnibus exsertis, antheris oblongis parvis, polline rubro.

A. Luntii, *Baker in Kew Bullet.* 1894, p. 342.

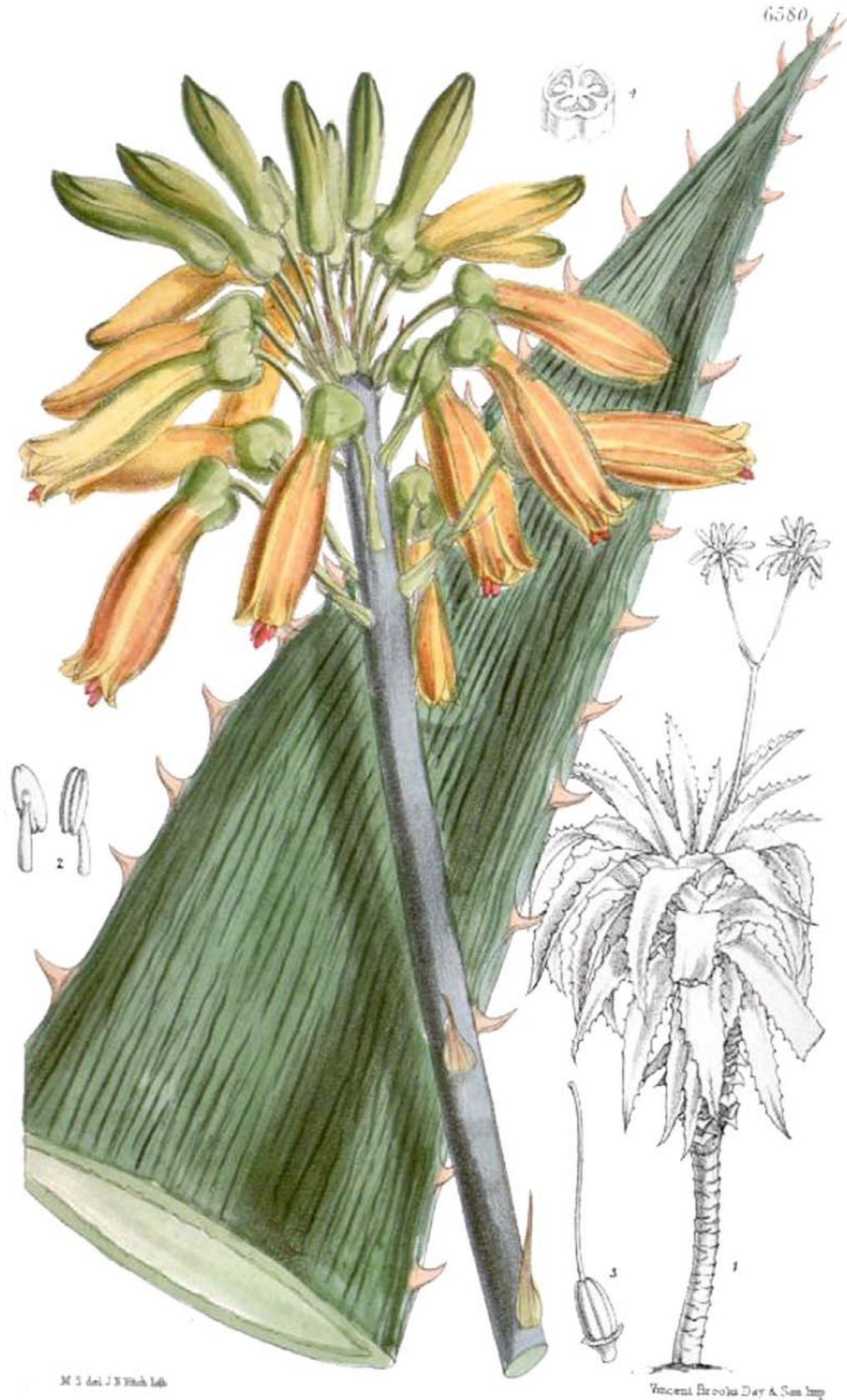
This very distinct new Aloe was discovered by Mr. W. Lunt, now of the Trinidad Botanic Garden, when he was attached as botanical collector to the expedition organized by J. Theodore Bent, Esq., in the winter of 1893–4, to explore the ruined cities of the province of Hadramaut, in Southern Arabia. This district had never been before explored botanically, and although the time of the year was unfavourable, about thirty new plants were discovered, of which three proved to be new genera. The present plant was found on the hills above Dobiabah, at an elevation of three thousand feet above sea-level. Both living and dried specimens were brought home, and one of the former flowered in the Royal Gardens at Kew last November. The leaves have no marginal prickles, and the flowers have an unusually long tube, resembling that of a *Gasteria*, but not dilated into a ball at the base.

Descr.—Shortly caulescent. *Leaves* seven or eight in a dense rosette at the top of the stem, at first distichous, ensiform, a foot long, two inches broad at the base, narrowed gradually to the point, pale green on both sides, without any spots, stripes or marginal prickles, deeply channelled down the face in the upper half. *Peduncle* stiffly erect, longer than the leaves. *Panicle* of four or five

DECEMBER 1ST, 1895.

long lax racemes, the side ones spreading horizontally; bracts very small; pedicels short, articulated at the apex, the upper ones ascending, the lower cernuous. *Perianth* under an inch long; tube cylindrical, pale red; lobes linear-oblong, erect, shorter than the tube. *Stamens* all exerted; anthers small, oblong; pollen bright red.—*J. G. Baker.*

Fig. 1, An entire flower; 2, front view of anther; 3, back view of anther; 4, pistil:—*All enlarged*; 5, whole plant *much reduced*.



M. 3 del J. S. Vitch del.

Vincent Brooker Day & Son Imp.

TAB. 6580.

ALOE MACRACANTHA.

Native of the Cape Colony.

Nat. Ord. LILIACEÆ.—Tribe ALOINEÆ.

Genus ALOE, Linn.; (*Baker in Journ. Linn. Soc.* vol. xviii. p. 148.)

ALOE *macracantha*; caudice elongato simplici, foliis 20–30 dense rosulatis lanceolatis pedalis et ultra 3–4 poll. latis viridibus lineis et maculis albidis confluentibus copiosis decoratis margine aculeis magnis patulis corneis deltoideo-cuspidatis præditis, pedunculo simplici vel furcato, floribus dense corymbosis, pedicellis erecto-patentibus 1–1½ poll. longis, bracteis lanceolatis pedicello brevioribus, perianthii splendide luteo-rubri tubo supra basin constricto, segmentis tubo duplo brevioribus, genitalibus perianthio sequilongis.

A. *macracantha*, *Baker in Journ. Linn. Soc.* vol. xviii. p. 167.

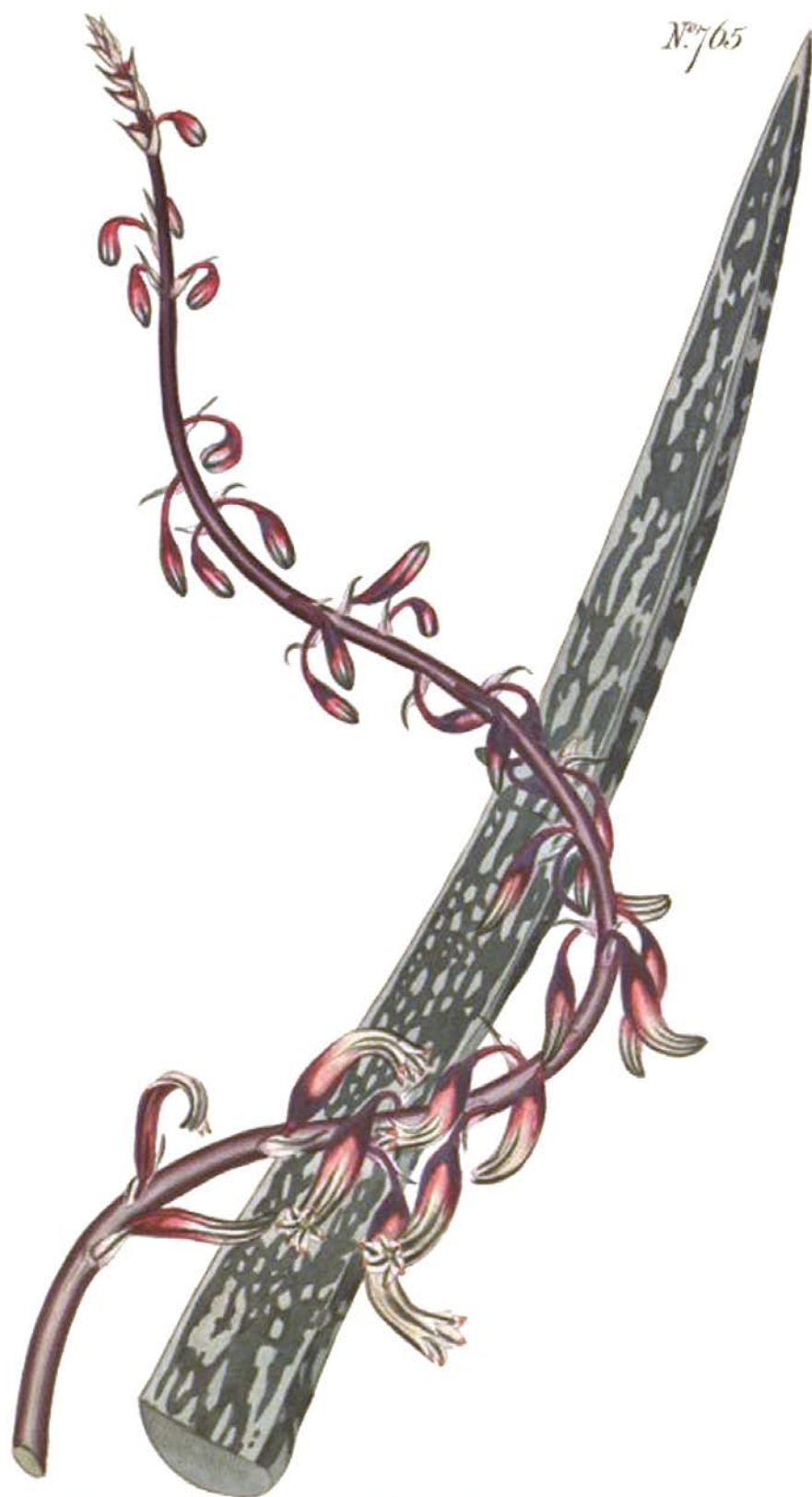
This is unmistakably the finest of all the spotted Aloes. Its alliance is with *A. Saponaria* and *A. latifolia*, from which it is marked at a glance by its longer caudex, broader leaves, and larger flowers. It is one of the most interesting of the many novelties in succulent plants, discovered by Mr. Thomas Cooper, of Reigate, in his travels through the eastern provinces of Cape Colony, from 1858 to 1862, on behalf of Mr. Wilson Saunders and the Royal Horticultural Society. We have had it growing at Kew to my knowledge since 1870, and it is now widely spread in collections; but so far as I am aware, it has never flowered in cultivation till now. Our drawing was made from a plant that flowered in the Cactus-house at Kew in March of this present year.

DESCR. *Caudex* simple, reaching a length of two or three feet, and a diameter of two or three inches. *Leaves* twenty to thirty in a dense rosette, lanceolate, twelve or fifteen inches long, three or four inches broad below the middle, narrowed gradually from the middle to the tip, one-sixth of an inch thick in the centre, nearly flat on the face, bright

SEPTEMBER 1ST, 1881.

green, with copious lines and oblong confluent whitish blotches, much paler on the convex back, furnished on the margin with large deltoid-cuspidate spreading prickles which are brown and horny in the upper half. *Peduncle* flattened, purplish, glaucous, simple or forked, above a foot long. *Inflorescence* a dense corymb about four inches in diameter; pedicels erecto-patent, an inch or an inch and a half long; bracts lanceolate, shorter than the pedicels. *Perianth* bright yellow, with a tinge of red, nearly two inches long; tube distinctly constricted above the globose base; segments oblong-lanceolate, half as long as the tube. *Stamens* and *style* just reaching to the tip of the perianth-segments; pollen bright red.—*J. G. Baker.*

Fig. 1, Whole plant,—*much reduced*; 2, front and back view of anthers,—*magnified*; 3, pistil,—*natural size*.



Vol. Edwards del. Pub. by T. Curtis, St. Geo. Crescent Aug 11. 1846. F. L. Smith sculp.

ALOE MACULATA. SPOTTED ALOE.

Class and Order.

HEXANDRIA MONOGYNIA.

Generic Character.—*Vide Num.* 756.*Specific Character and Synonyms.*

ALOE *maculata* (*subacaulis*) foliis inæqualiter trigonis, maculatis, junioribus subdistichis, longe acuminatis; scapo elongato, sursum ramofo; floribus racemosis, pedicellos parum excedentibus; corolla curvata, deorsum ventricosa, laciniis externis longius unitis; organis inclusis. G.

ALOE *maculata*. Thunb. *Diff.* 10. *Hort. Kew.* 1. 469. Mart. *Mill. Dict. Willd. Sp. Pl.*

ALOE *maculata* (*pulchra*). *Mill. f.* 195. t. 292.

ALOE *obliqua*. *Decand. Pl Gr.* 1. 16. t. 91.

Stem very short, generally covered with leaves, the lower of which are ambient, the younger commonly distich and far acuminate; all variegated or spotted with white, quite smooth, polished, with entire even edges. Scape tall, slender, branched upwards. Flowers growing in a loose pendulous raceme, rather longer than the pedicles, as these are than the bractes. Corolla cylindrical, ventricose downwards, curved towards the middle; the three outer segments are connate as far as the curve; inner thinner. Stigma simple. Filaments enclosed in the slender part of the corolla. Seeds flat, membranously alate.

Cultivated here by MILLER. Found at the Cape of Good Hope by THUNBERG, growing wild in the Houtniquas mountains; but often cultivated at Cape Town.

To be treated like the other Cape Aloes. Blooms freely, and is easily propagated by offsets; very common. G.



ALOE MARGARITIFERA (v. *media*). MIDDLE.
SIZED PEARL-LEAVED ALOE.

Class and Order.

HEXANDRIA MONOGYNIA.

Generic Character.—*Vide N^{um.} 765.*

Specific Character and Synonyms.

ALOE *margaritifera* (*acaulis; parviflora*) foliis radicalibus, cuspidato-trigonis, confertis, sparsim circumstantibus, verrucis albescentibus obtusis inermibus undique conspersis; scapo alto, ramofo; corolla ventricoso-cylindrica, bilabiata, laciniis longius coalitis; stylo brevi.
G.

ALOE *margaritifera* (v. *media*). *Gertn. Sem.* 67. *t.* 17. *Hort. Kew.* 1. *p.* 468. *Willd. Sp. Pl.* 2. 188. *Haworth Transf. Linn. Soc.* .7. 11.

ALOE *pumila margaritifera*. *β. Linn. Sp.* 460.

ALOE *pumila*. *Thunb. Diff.* 7. 8. *Prod.* 61.

ALOE *africana margaritifera* folio undique verrucis numerosis. *Bradl, Succ.* 3. *p.* 1. *t.* 21.

ALOE *africana* folio in summitate triangulari margaritifero flore subviridi. *Comm. Hort. Amst.* 2. *p.* 19. *t.* 20. *et* 2. *p.* 21. *t.* 11. *Boerh. Ind. Alt.* 2. 130. *n.* 29. *Aubr. pict. Hort. Paris. Dill, Elth,* 19. *t.* 16. *f.* 17.

A native of the Cape of Good Hope; introduced into our gardens by BRADLEY in 1725; is a plant of easy cultivation and propagated by seeds and offsets. There are four varieties according to Mr. HAWORTH, while DECANDOLLE and others enumerate only three; their differences consist chiefly

chiefly in stature and in the greater or less number, as well as regularity, of the pearl-like warts that beset the leaves, which are many, from one to six inches in length, all radical and sparsely ambient round the branched scape, which is from two to three feet high with somewhat whirled upright branches. The flowers are of the smaller size, of a dullish herbaceous colour, and arranged in a loose raceme; the segments of the corolla far-concrete and reflectedly patent upwards; three outer-ones flat, inner ones subchannelled at their summit; stamens unequal; stigma simple. DECANDOLLE has figured the smallest variety only. *G.*



ALOE MARGARITIFERA (γ); MINIMA. LEAST
PEARL-ALOE.

Class and Order.

HEXANDRIA MONOGYNIA.

Generic Character.—*Vide Num.* 1352.

Specific Character and Synonyms.

ALOE *margaritifera*; (*ecaudicata; flores e minoribus, erecti, bilabiati;*) foliis plurimis, radicalibus, aggregatim ambientibus, varie patentibus, rigidis, pulvinato-craffis, subulato-lanceolatis, gibbis, bullulis cartilagineis margaritaceo-candicantibus undique asperfis, carinato-cuspidatis; caule firmulo, ramofo; racemo erecto laxius multifloro; bracteis ovato-acutis, subundulatis, brevibus; pedicellis corolla quinquies brevioribus subnullifve; corolla erecto-divergente, e deorsum ventricosiore tubulose coarctata, flexstriata, ad quartam circiter bilabiato-foluta; laciniis superioribus erectioribus explicatioribus imbricato-convergentibus media latiore, infimarum lateralibus convolutis angustatis recurvato-varicatis; staminibus tubo inclusis; stylo craffo brevi, apiculo stigmatoso trilobulato-depresso. G.

ALOE *margaritifera*. Hort. Kew. 1. 468. Gært. Sem. 1. 67. t. 17. f. 5. Mart. Mill. Dict. Haworth Linn. Transf. 7. 11. n. 19. Decand Pl. Gr. fol. 57. Willd. Sp. Pl. 2. 188. Supra No. 815. Hort. Kew. ed. 2. v. 2. 301.

ALOE *pumila*. Thunb. Diff. n. 8. Prod. 61.

ALOE *pumila*. *margaritifera*. Linn. Sp. Pl. ed. 2. 1. 460.

A. foliis ovato-subulatis acuminatis tuberculis cartilagineis, undique asperfis. Mill. Dict. ed. 7. n. 14.

(α .) *major*.

A. *africana* folio in summitate triangulari *margaritifera* flore subviridi. Comm. Hort. Amst. 2. 19. tab. 10.

A. *africana* *margaritifera* foliis undique verrucis numerosissimis. Bradl. Succ. 3. p. 1. t. 21.

(β .) *minor*,

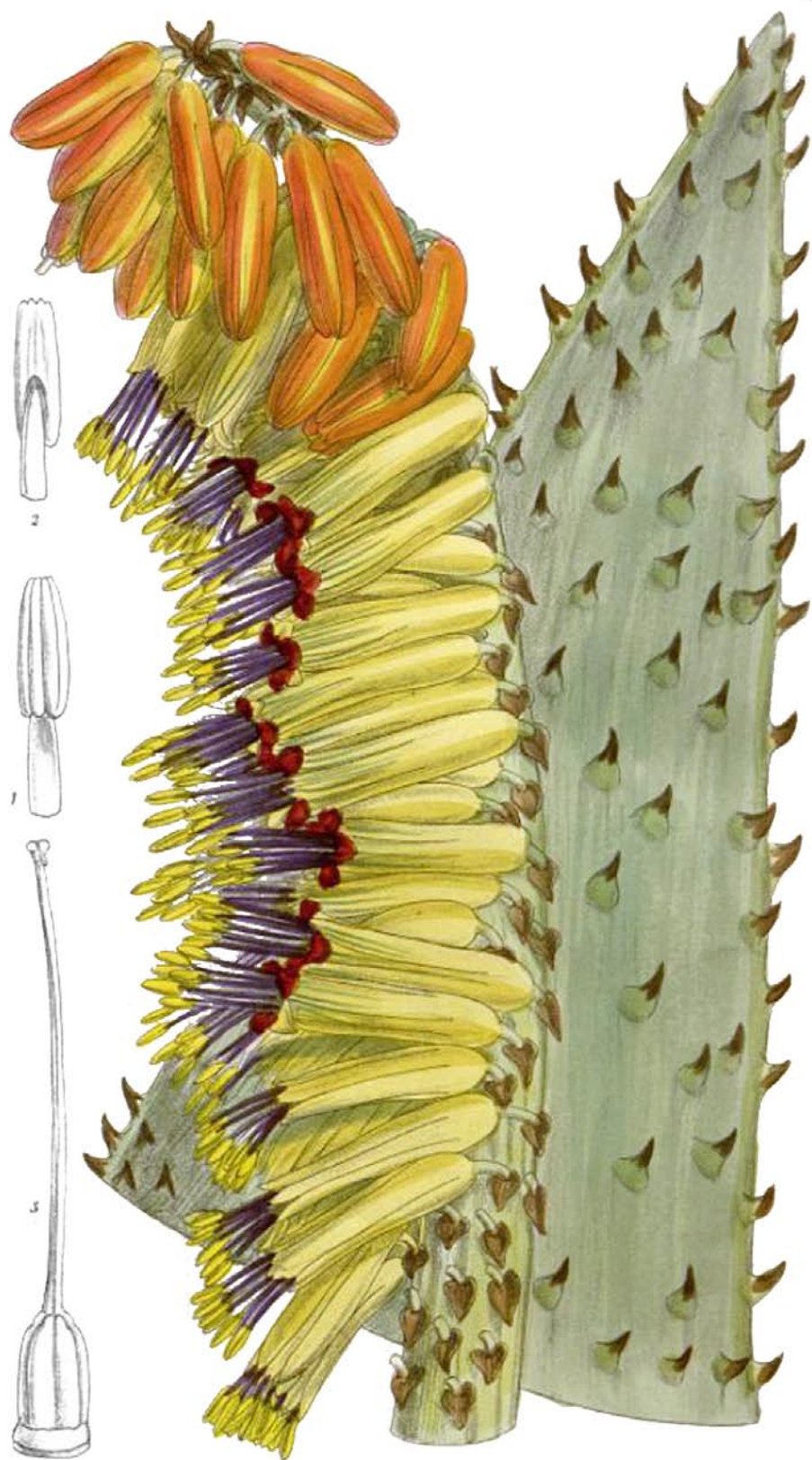
(β .) *minor*. *Supra* No. 815. *Decand. l. c. cum tab.*

A. africana margaritifera minor. *Comm. Hort.* 2. 21. *t.* 11.
Dill. Hort. Elth. 19. *t.* 16. *f.* 17.

(γ .) *minima*. *Supra* No. 1360.

A. africana margaritifera minima. *Dill. Hort. Elth.* 20. *t.* 16.
f. 18. *Com. Præl.* *p.* 43.

We refer to No. 815 for a general account of the species. To this we have nothing to add, but that for *media*, *minor* should be substituted as the subspecific distinction, and in the last line but one of the second page for “smallest” “second” is to be read. We had the present specimen from Mr. HAWORTH’s collection. G.



M.S. del J.N. Fitch lith.

Vincent Brooks Day & Son Lith.

L. Reeve & Co. London.

ALOE MARLOTHII.

South Africa.

LILIACEAE. Tribe ALOINEAE.

ALOE, *Linn.*; *Benth. et Hook. f. Gen. Plant.* vol. iii. p. 476.

Aloe Marlothii, *Berger in Engl. Jahrb.* vol. xxxviii p. 87; *et in Engl. Pflanzenr. Liliac. Aloin.* p. 312, fig. 133; *Wood, Natal Plants*, vol. vi. tt. 579, 580; species *A. Galpini*, Baker, quam maxime affinis sed foliis subtus spinoso-tuberculatis et floribus secundis luteis nec rubri, pauloque longioribus differt.

Frutex succulentus, caudice valido simplici rosulam foliorum ad 1 m. usque diametientem suffuscente, inferne densiuscule foliis exsiccatis persistentibus reflexis vestito. Folia conferta, 4–5 dm. tonga, 15–17 cm. lata, ovato-lanceolata vel lanceolata, acuminata, margine aculeis conicis 0.5–1.5 cm. remotis armata, supra concaviuscula, apicem versus subcanaliculata, parte inferiore sparse spinoso-tuberculata vel omnino inermia, subtus convexa, subcarinata ubique spinoso-tuberculata et secus carinam tuberculis 1-serialibus notata vel nonnunquam subinermia, utrinque perglaucæ; aculeae apice brunneae. *Pedunculi* erecti, fere metrales repatite dichotome ramosi subcandelabrifformesque, subpurpurascens; rami subhorizontaliter patentes, apice leviter sursum recurvi, 1.5 cm. crassi. *Flores* secundi, omnes sursum spectantes simulæ leviter deflexi; bracteae reflexae, 6–7 mm. longae, ovatae, acutae, submembranaceae, pallide brunneae; pedicelli 4–6 mm. longi, validi, recurvi, virides. *Perianthium* 3.3 cm. longum, subcylindricum, versus apicem leviter dilatatum, segmentis apice rotundatis vix patentibus, extra luteum, superne viridi-striatum, interioribus 3 apice brunnis. *Stamina* 1.2–1.8 cm. ultra perianthium exserta; filamentorum parte exserta atro-violacea, parte inclusa pallide lutea; antherae aurantiacae. *Stylus* exsertus, pallide luteus, apice fuscus.—*A. supralaevis*, *β Hanburii*, Baker in Dyer, *Fl Cap.* vol. vi. p. 827; nequaquam *A. supralaevis*, Haw.—N. E. BROWN.

The fine Aloe here figured was discovered by Dr. R. Marloth first at Lobatsi in Bechuanaland; later near Ladysmith in Natal; still later on the Klip River Mountains near Johannesburg in the Transvaal. Transvaal specimens flowered first under cultivation in the Grahamstown Botanic Garden in July 1908. A plant sent by Dr. Marloth in 1905 from the Klip River locality to Sir Thomas Hanbury, at La Mortola, flowered there in April 1912 and provided the material for our illustration. The species, however, had already reached Europe; the plant described by Mr. Baker

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as *A. supralaevis*, β *Hanburii*, from European cultivated specimens, cannot be distinguished from that figured by Mr. Medley Wood as *A. Marlothii*, and Mr. Medley Wood's Natal plant is identical with the Transvaal one described by Mr. Berger. As Wood remarks, *A. Marlothii* had, until Berger defined it, been confused in South Africa with *A. ferox*, Mill., figured at t. 1975 of this work, and it is possible that there, as in Europe, it may have been confounded with species other than *A. ferox*, which have themselves been misunderstood. This confusion cannot be unravelled here; Mr. Berger's species is, however, a very distinct one which, while approaching *A. ferox* as regards the colour of its flowers, is in other respects more nearly allied to *A. Galpini*, Baker, in which the flowers are red.

DESCRIPTION.—*Shrub*, succulent; stem stout, simple, with a terminal rosette, over 3 ft. wide, of about 30 fleshy leaves, and clothed below with the dried remains of pendent shrivelled ones. *Leaves* close-set, $1\frac{1}{2}$ – $1\frac{3}{4}$ ft. long, 6– $6\frac{1}{2}$ in. wide, ovate-lanceolate or lanceolate, acuminate, armed on the margin with conical thorns $\frac{1}{4}$ – $\frac{1}{2}$ in. apart, slightly concave above, more distinctly channelled towards the tip, convex, slightly keeled below, very glaucous on both faces, above sparingly spinescent on the lower half, more closely and uniformly spinescent throughout on the back, but sometimes quite unarmed above and only sparingly spinescent on the back; thorns brown-tipped. *Peduncles* erect, over 3 ft. high, repeatedly dichotomously branched and almost candelabriform, somewhat purplish; branches almost horizontal, but again slightly recurved at the tip, over $\frac{1}{2}$ in. thick. *Flowers* secund, all directed upwards and at the same time slightly deflexed; bracts reflexed, about $\frac{1}{4}$ in. long; pedicels $\frac{1}{6}$ – $\frac{1}{4}$ in. long, stout, recurved, green. *Perianth* $1\frac{1}{3}$ in. long, subcylindric, slightly dilated at the top, segments rounded and hardly spreading at the tip, yellow outside striped with green towards the top, the three inner segments with brown tips. *Stamens* projecting $\frac{1}{2}$ – $\frac{3}{4}$ in. beyond the perianth; the exposed portion of the filaments dark violet, the enclosed portion pale yellow; *Style* exserted, pale yellow with a brown tip.

Figs. 1 and 2, anthers; 3, pistil:—all enlarged.

N^o 2272.



Herb. B. L.

Pub. by S.

descri. Tabern. in. 3. 22. 182

ALOE MICROCANTHA. SMALL-SPINED ALOE.

Class and Order.

HEXANDRIA MONOGYNIA.

Generic Character.

Cor. erecta, ore patulo, fundo nectarifero. *Filamenta* receptaculo inserta.

Specific Character and Synonyms.

SECT.* *Corollis cylindricis reflexis.*

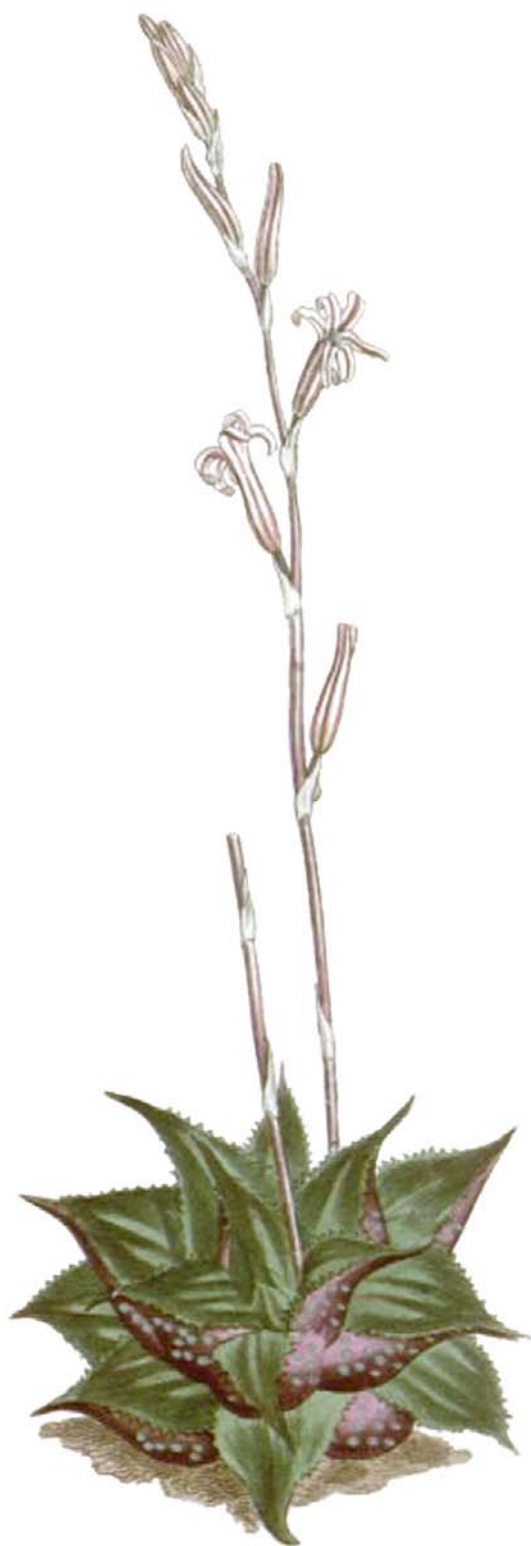
ALOE *microcantha*; foliis lineari-loratis canaliculatis margine spinulosis, racemo umbellato laxo, pedunculis corolla longioribus.

ALOE *microcantha*; foliis anguste ensiformibus inferne albo-maculatis, maculis saepe tuberculiformibus oblongis sparsis numerosis, spinis marginalibus rectis albis minutissimis. *Haworth Suppl. Pl. succul. p.* 105.

DESCR. *Leaves* linear-lanceolate, scarcely a foot and a half long, half an inch wide at the base, and gradually tapering to the point; deeply channelled, margins armed with very minute white spines somewhat recurved, palish green with white oval distinct spots, not very fleshy, and of a supple consistence. *Scape* nearly a foot long, semi-cylindrical at the lower part and rounded above, clothed with distinct, ovate, acuminate, streaked, scariose *Bractes*, half embracing the stem. *Flowers* in a terminal, subumbellate, lax raceme, at first erect, then nodding. *Peduncles* white, erect, longer than the corolla, which is cylindrical, an inch and a half long, with rose coloured petals tipped with green, a little recurved at the point: the three exterior ones somewhat the shortest. *Filaments* unequal: *Antthers* oval, orange coloured: *Style* the length of the corolla: *Stigma* capitate.

For

For this very rare species, which is supposed not to exist in any of our other collections except in that of Kew, where it was introduced about two years since from the Cape of Good Hope, we are indebted to THOMAS KITCHIN, Esq. of Norwich, in whose garden, rich in succulent plants, it flowered in July last.



ALOE MIRABILIS. ROUGH-LEAVED
CUSHION ALOE.

Class and Order.

HEXANDRIA MONOGYNIA.

Generic Character.—*Vid. No. 1352.*

Specific Character and Synonyms.

ALOE *mirabilis*; (*ecaudicata*; *flores e minoribus, erecti, bilabiati*;) foliis radicalibus, compacte ambientibus, brevibus, pulvinato-incraffatis, teneris, semi-rhombeo-oblongatis; introrsum, ventricosus declive truncatis lævibus lineis saturatioribus verticaliter inscriptis; dorso subcarinato convexis papillose scabratis acumine continuo; margine atque carina denticulatis; caule simplici gracili flexili; racemo remotius paucifloro; corolla tubulosa angulis rotundatis, ad tertiam usque revoluta-bilabiata; laciniis utriusque labii ab invicem discedentibus; staminibus tubum equantibus. *G.*

ALOE *mirabilis*. *Haworth. Linn. Transf. 7. 9. n. 13. Hort. Kew. ed. 2. v. 2. 300.*

Native of the Cape of Good Hope; from whence it was brought into our gardens by Mr. MASSON in 1790. Seems to be intermediate between *arachnoides* and *retusa*; by some it may be suspected to be a mere variety of the latter, or a mule of the two species. We are indebted to Mr. HAWORTH for the specimen. Should be kept in the common greenhouse; requires no particular care. The foliage is of a darker green than that of *retusa*. *G.*

ERRATA.

No. 1346, l. 8. pro "*crassene e longe*" lege "*crasse nec longe*."

No. 1347, pag. alt. l. 19. for "*corolla* of a pale rusty yellow colour," read "*corolla* from a reddish white fading to a pale rusty yellow colour."



ALOE MITRÆFORMIS. MITRE ALOE.

Class and Order.

HEXANDRIA MONOGYNIA.

*Generic Character.—Vid. No. 765.**Specific Character and Synonyms.*

ALOE *mitræformis*; (*caudescens*; *caudex in annosioribus deorsum nudus*; *corolla e grandioribus*;) foliis amplexicaulibus, sparsim ambientibus, confertis, ovato acuminatis, affurgenter convergentibus, margine spinoso-dentatis, nunc acumina pauca brevia dorso vage exferentibus; caule ramofo; racemis densioribus, sensim oblonge productis; pedunculis ascendentibus, bractea multum longioribus; corolla sexpartita, recta, cylindracea, pendulo-cernua, pedunculis fere æquali; staminibus alternis longioribus corolla: subfometris. *G.*

ALOE *mitræformis*. *Mill. Dict.*, ed. 8. n. 1. *Haworth on Aloe in Linn. Transf.* 7. 23. *Decand. Pl. grasses.* 99. *cum tab.*

A. perfoliata, κ. *Willd. Sp. Pl.* 2. 186.

A. perfoliata, ο. *mitræformis*. *Hort. Kew.* 1. 467.

A. perfoliata. v. *Linn. Sp. Pl. ed.* 2. v. 458.

A. picta v. *Thunb. Diff. de Aloe.* 6. n. 4.

A. africana; *caulescens*; folio crasso, obscure viridi, spinis ad latera et in dorso armato. *Boerb. ind. alt.* 2. 131. n. 39.

A. africana mitriformis spinosa. *Dillen. Hort. Elth.* 21. *tab.* 17. *f.* 19.

ALOES *mitrè* *Lam. Dict. Encyc.*

In young plants the stem is short and entirely covered with leaves, in process of time the lower ones fall off, while the stem attains from two to six feet in height, when the greater part

part becomes woody and naked; *leaves* shortish in proportion to the stem, thick, succulent, brittle, very smooth, convex at the back, depressed on the upper side, marginal *teeth* cartilaginous, generally whitish, rather distant but regular; *flower-stalk* branched, from one to three feet high; in young sterile plants the upper leaves converge more remarkably than in old flower-bearing ones; in the winter they are sometimes clouded with a purplish-brown tint; corolla bright deep scarlet with a greenish brim. Blooms from July to December. Should be kept in the dry stove. Native of the Cape of Good Hope. Propagated by suckers and seeds; from which last MILLER has raised the plant, but did not find it vary in the extraordinary way that LINNÆUS supposed.

Our drawing was made at Mr. SALISBUSRY's Botanic-Garden, Sloane-Square. *G.*

E R R A T A .

No. 1045 l. 13, *pro* "cujus ungues imo scrobiculati, melliferi;" *lege* "imis ungibus scrobiculo mellifero exsculptis;"

No. 1091, l. 23, *pro* "appicta" *lege* "appaeta."

No. 1261, l. 24, *after* "each" *add* "other."

Nº 1362.



J. A. Edwards Del.

Painted by J. Coulter Walworth Aug. 1881

J. Sargent & Co.

ALOE MITRÆFORMIS(β.) BREVIFOLIA. LEAST
MITRE-ALOE.

Class and Order.

HEXANDRIA MONOGYNIA.

Generic Character.—*Vid. No. 1352.*

Specific Character and Synonyms.

ALOE *mitræformis*; (*caudex annosior suborgyalis, desuperne humotenus defoliatus; flores e majoribus, pendulo-cernui, recti;*) foliis sparse ambientibus, succulento-fragilibus, ovato-acuminatis concaviusculis, subtus subcarinato-convexis fursum incurvulis (*forma fere depresso-naviculari,*) dentibus cartilagineis brevibus distantius marginatis, a prono sæpius acumina nonnulla vaga exferentibus, summis confertioribus subcapitato-conniventibus, inferioribus sensim distantioribus; scapo simplici vel corymbofo ramofo; racemo crebro multifloro oblato-cylindrico vel umbellato-contracto retrorsum imbricato; pedicellis divaricantibus corolla subisometris bractea bis terve longioribus; corolla recto-tubulosa, sexpartito-foluta, rotundato-trigona, ore brevi regulari patula; antheris alternis subemicanantibus. G.

ALOE *mitræformis*. α. *Vid. supra No. 1270, ubi synonyma videnda ei propria.*

ALOE *mitræformis*. β. *brevifolia*; foliis ovatis brevibus distantibus subtus tuberculatis. Hort. Kew. ed. 2. v. 2. 294; (*ad α. reducta figura ex Decandolleo ibi minus recte ad β. allegata.*)

A. *brevifolia*. Haworth. Linn. Transf. 7. 23. n. 51.

A. *mitræformis*; angustior. (*Le petit mitrè.*) Lamarck. Encyc. 1. 87.

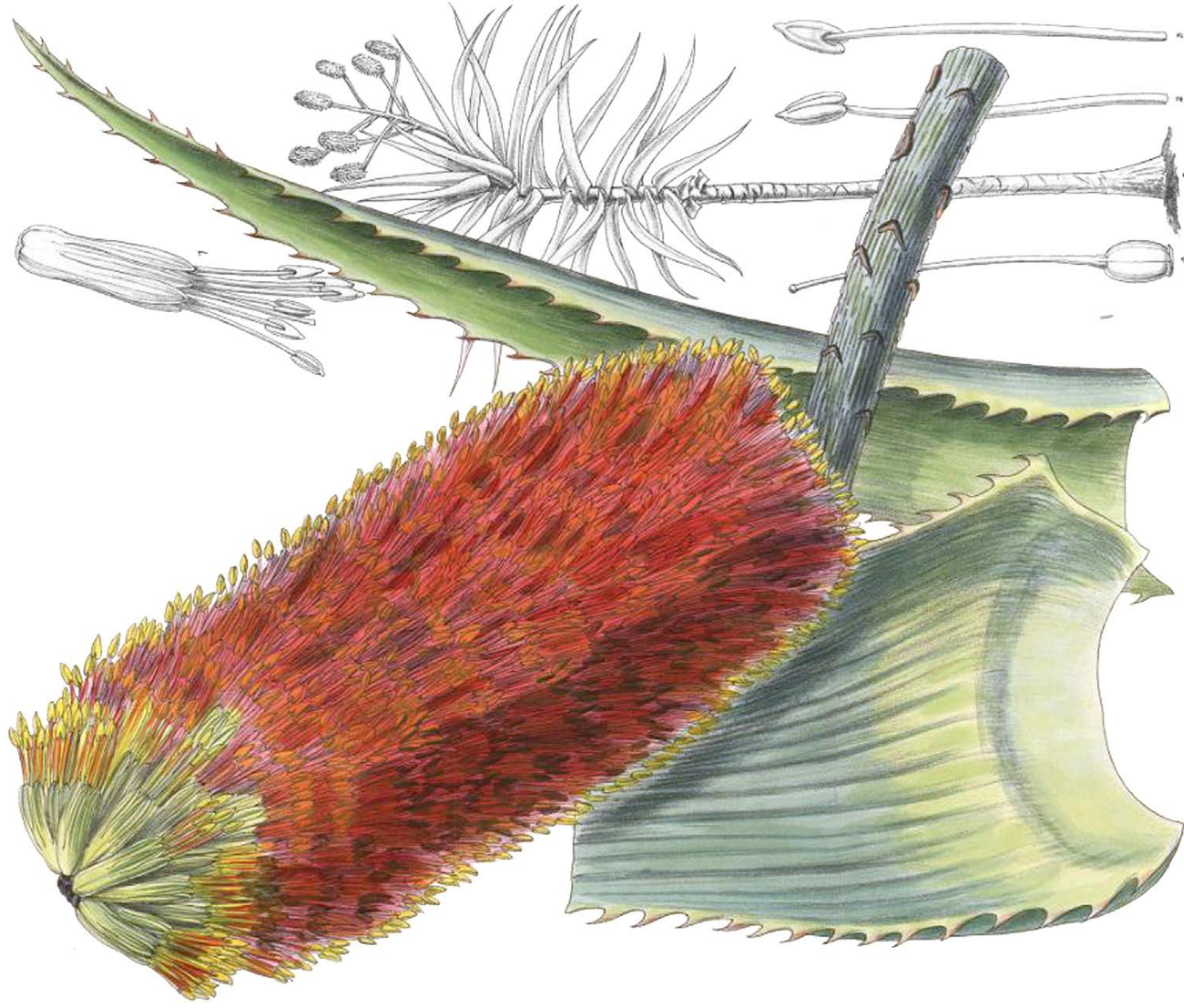
A. *perfoliata*. π. *brevifolia*. Hort. Kew. 467.

OBS. ALOE *brevifolia*. Decand. Pl. Gr. 81, omnino alia ac diversissima species, G.

We do not find the present plant distinctly noticed in any work prior to the first edition of the Hortus Kewensis. We cannot agree with Mr. HAWORTH in considering it as a different species from the larger plant already given in No. 1270. Native of the Cape of Good Hope. We have seen it with a stem more than three feet high. Our drawing was taken from a plant that flowered at Mr. LODDIGES's Nurfery, Hackney. G.

ERRATUM.

No. 1353, l. 18. for "*Id.*" read "*Haworth.*"



TAB. 8147.
ALOE NITENS.
South Africa.

LILIACEAE. Tribe ALOINEAE.

ALOE, Linn.; Benth. et Hook. f. Gen. Plant. vol. iii. p. 776.

Aloe nitens, Baker in Journ. Linn. Soc. vol. xviii. p. 170, et in Thiselton Dyer, Fl. Cap. vol. vi. p. 325, non Schult. f.; *A. africanae*, Mill., affinis, a qua inflorescentia paniculata perianthioque recto viridi recedit.

Caulis simplex, circa 3 m. altus, 7.5 cm. diam. *Folia* prope apicem caulis congesta, lanceolata, glabra, 60 cm. longa, 6 cm. lata; spinae curvatae, brunneae, 3 mm. longae, inter se 8 mm. distantes. *Panicula* racemosa; pedunculi patentes, circa 35 cm. longa; spica multiflora, eam *Kniphofiae alooidis*, Moench, simulans; bracteae circa 10 cm. longae; bracteolae dense imbricatae, lunatae, 5 mm. diam., marginibus membranaceis valde recurvis. *Flores* subsessiles, virides. *Perianthium* rectum, cylindricum, 2 cm. longum; segmenta oblonga, obtusa, 4 mm. lata, exteriora herbacea, 5-nervia, interiora membranacea, 3-nervia. *Stamina* perianthio duplo longiora; filamenta complanata, basi 1 mm. lata, in antherae foveoli dorsifixae; antherae oblongae, 4 mm. longae, apiculatae. *Ovarium* ovoideum, 6 mm. longum; stylus staminibus aequilongus.

For years *Aloe nitens* has been one of the most striking of the many species cultivated in the Succulent House at Kew, flowering in midwinter every year when its large inflorescence, formed of six or more branches, each bearing a cluster of rich crimson flowers, is a great attraction. It was sent to Kew in 1877 by Sir Henry Barkly when Governor at the Cape, and it is now a fine specimen 12 ft. high, the upper half clothed with long green leaves.

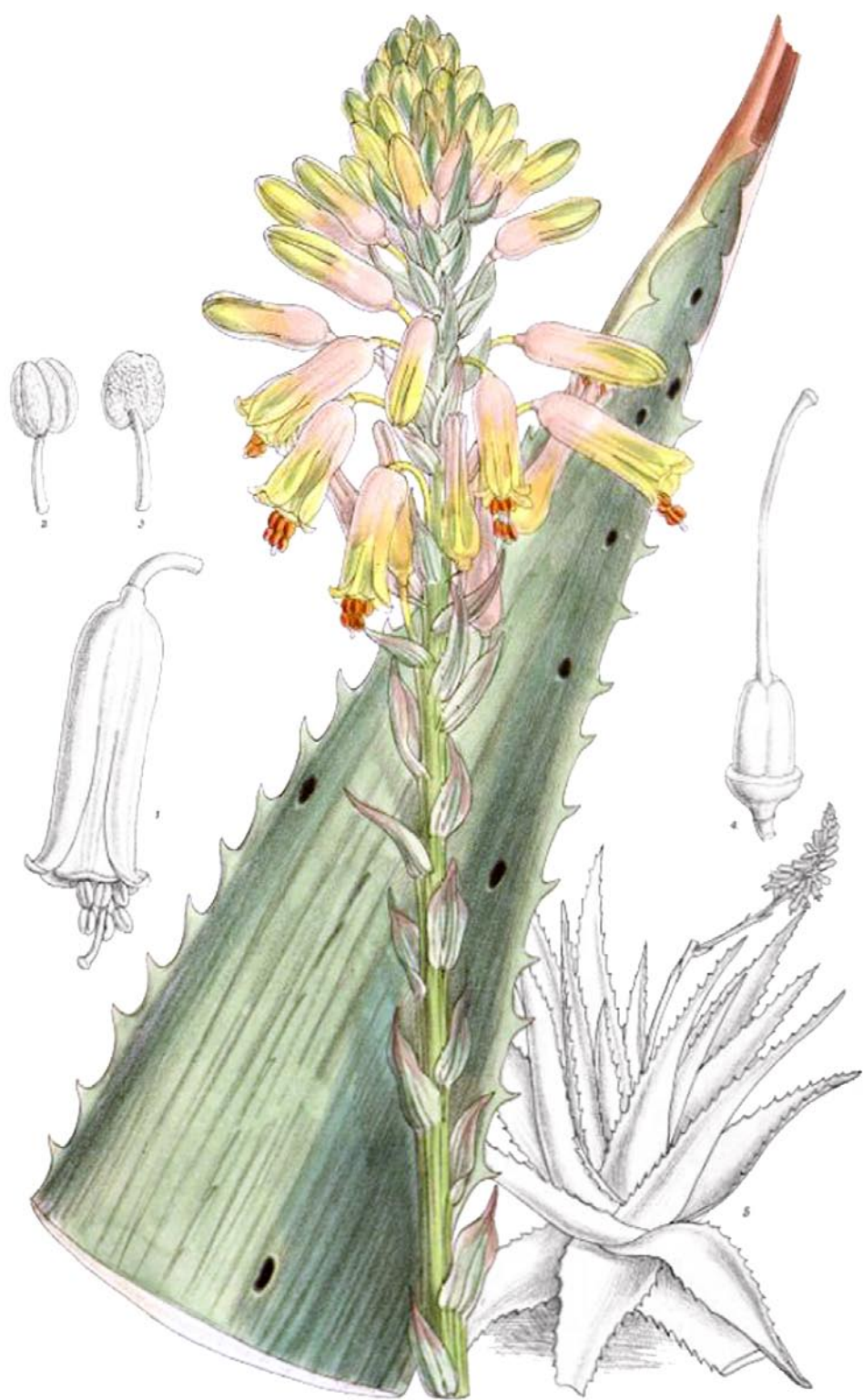
Descr.—*Stem* unbranched, about 12 ft. high, 3 in. in diameter, pale brown. *Leaves* crowded into an apical crown, lanceolate, glabrous, about 2 ft. long and $2\frac{1}{3}$ in. wide, edged with stout brown upcurved spines $\frac{1}{8}$ in. long, and about $\frac{1}{3}$ in. apart. *Panicle* bearing about 7 spikes racemosely arranged; peduncles patent, about 14 in. long; spikes densely many-flowered, resembling those of *Kniphofia alooides*, Moench; bracts about 4 in. long; bracteoles densely imbricate, lunate, about 3 lin. across, with strongly recurved membranous margins; flowers subsessile. *Perianth* straight, cylindrical, $\frac{3}{4}$ in. long, green; segments oblong, obtuse, $\frac{1}{6}$ in. wide, the outer herbaceous and

AUGUST 1ST, 1907.

5-nerved, the inner membranous and 3-nerved. *Stamens* twice as long as the perianth; filaments flattened, $\frac{1}{24}$ in. wide at the base, inserted into a pit at the back of the anther near its base; anthers oblong, $\frac{1}{5}$ in. long, apiculate. *Ovary* ovoid, $\frac{1}{3}$ in. long; style as long as the stamens.—C. H. WRIGHT.

Cultiv.—Although the genus *Aloe* is not popular in English gardens, a considerable number of the species are decidedly ornamental; their flowers are attractive in form and colour, and they are among the easiest of plants to cultivate. They are generally grown in pots, but where space can be afforded they grow more quickly, and much happier when planted in a border of gravelly soil. *A. nitens* is one of the less tropical species; it would probably be an ideal plant for the gardens of the Riviera.—W. WATSON.

Fig. 1, flower; 2 and 3, stamens; 4, pistil:—*all enlarged*; 5, sketch of the whole plant:—*much reduced*.



M. S. del. J. H. Pouch lith.

Vincent, Brooker Day & Son. L^o Day

L. Reeve & C^o London.

TAB. 7834.

ALOE OLIGOSPILA.

Native of Abyssinia.

Nat. Ord. LILIACEÆ.—Tribe ALOINEÆ.

Genus ALOE Linn.; (*Benth. & Hook. f. Gen. Plant.* vol. iii. p. 776.)

ALOE *oligospila*; acaulis. foliis multis dense rosulatis ascendentibus lancolatis acuminatis, obscure lineatis parce ablo-maculatis facie deorsum planis apice concavis dentibus, marginalibus ascendentibus magnitudine medio-cribus, pedunculo simplici foliis paulo longiore, racemo oblongo denso, pedicellis cernuis flore æquilongis, bracteis ovatis magnis, perianthii cylindrici pallide rosei apice viriduli lobis tubo longioribus, genitalibus breviter exsertis.

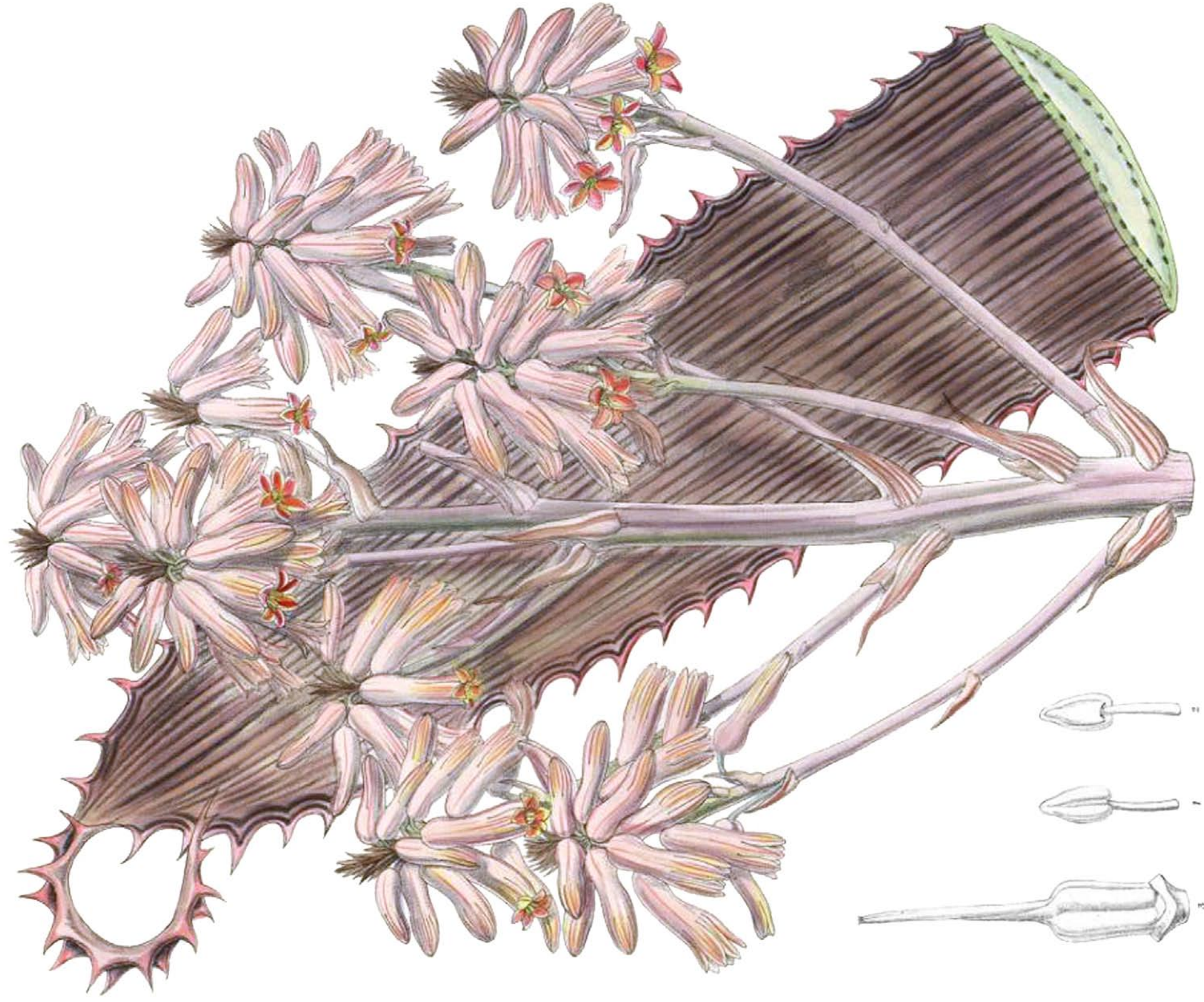
A. Bakeri. Hook, f., mss.

This new *Aloe* was raised by Mr. R. Irwin Lynch, A.L.S., Curator of the Cambridge Botanic Garden, from seeds sent from Abyssinia by Dr. Schinz, of Zurich. It was grown at Cambridge, under the name of *Aloe Schimper*, but is totally different from that species. It comes nearest the well-known Cape species *Aloe obscura* of Miller (*A. picta*, Thunb., *ex parte*; Sims in Bot. Mag. t. 1323), but differs by its sparingly-spotted leaves, shorter pedicels and smaller pale red flowers, with lobes longer than the tube. Amongst the Abyssinian species its nearest affinity is with *A. macrocarpa*, Todaro, and *A. commutata*, Todaro.

Descr.—Acaulescent. *Leaves* many, in a dense rosette, ascending, lanceolate-acuminate, under a foot long, two and a half inches broad low down, sparingly spotted with white, obscurely lineate, flat on the lower part of the face, concave towards the point; marginal teeth pale, ascending, moderately large and close. *Peduncle* simple, rather longer than the leaves. *Raceme* dense, oblong, three or four inches long; pedicels cernuous, the lower as long as the flowers; bracts ovate, rather shorter than the pedicels. *Perianth* cylindrical, pale, red tipped with green, under an inch long; lobes linear-oblong, longer than the tube. *Stamen* and *style* a little longer than the perianth.—*J. G. Baker.*

Fig. 1, a flower; 2. front view of anther; 3, back view of anther; 4. pistil:—all enlarged; 5, whole plant, much reduced.

MAY 1ST, 1902.



TAB. 8122.
ALOE PALLIDIFLORA.
South Africa?

LILIACEAE. Tribe ALOINEAE.

ALOE, Linn.; Benth. et Hook. f. *Gen. Plant.* vol. iii p. 776

Aloe pallidiflora, A. Berger in *Engl. Bot. Jahrb.* vol. xxvi. p. 58; *A. mac cantuae*, Baker (B. M. t. 6580), Affinis, foliorum spinis marginalibus inter se prioribus, perianthioque extus concolore differt.

Acaulis, simplex. *Folia* dense rosulata, erecto-patenti, lineari-lanceolata, longe acuminata, circa 35 cm. longa, 6–8 cm. lata et 1·3–1·5 cm. crasa, faciebus convexis, supra obscure viridia, maculis albidis lineari-oblongis saepe geminatis vix fasciatim dispositis sed saepissime confluentibus marmorata, lineisque concoloribus obscurioribusque praesertim senus margines striato-nervata, sibtus pallide viridia, immaculata; margines sinuato-dentati, aculeis deltoideis apice corneis brunneis pungentibus 3–6 mm. longis armati. *Inflorescentia* 0·8–1·3 m. alta; seapus glaucus, infra medium ramosus, ramis lateralibus 8–13, erecto-patentibnu, terminali brevioribus; racemi superne densi. 4–10 cm. longi; pedicelli circa 1·5 cm. longi; bractee scariosae, deltoideae, subulatae, 3-nerviae, 1–1·5 em. longae. *Perianthium* pallidum, incarnatum, supra ovarium leviter constrictur, faucem versus leviter ampliatur et curvetur, 3 cm. longum, subhexagonum; segmenta ultra medium connata, marginibus albidis, medio pallide striato-nervata, apice leviter recurvula, intus luteola. *Filamenta* vix exserta; antherae oblongae, aurantiaeae.

The plant of *Aloe pallidiflora*, Berger, here figured flowered in the garden of Sir Thomas Hanbury at La Mortola in April, 1906. It was obtained some years ago, without name, from the Royal Botanic Gardens, Berlin, and first flowered in March, 1904. Its native country is unknown, but it certainly is not from German South-West Africa, nor from German East Africa, neither have I seen it in any of the herbaria to which I have had access. Possibly it is a native of South Africa, and perhaps of the eastern regions, as it seems to me to be related to *A. Greatheadii*, Schoenland, in "Records Albany Museum," vol. i. p. 121, and *A. transvaalensis*, O. Kunze, in "Rev. Gen." vol. iii. 2, p. 314, both natives of the Transvaal.

So far it has produced a few capsules, but the seeds did not germinate, neither has it thrown up suckers as so many of its near allies generally do. At La Mortola it is quite hardy, though last year the flower-spike and the tops of the leaves seem to have suffered from the cold of the previous winter.

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Descr.—A stemless plant. *Leaves* in a dense rosette, erecto-patent, linear-lanceolate, tapering into a long point, about 14 in. long, $2\frac{1}{2}$ –3 in. wide, and $\frac{1}{2}$ in. thick, biconvex in section, dull green above and marbled with long, whitish marks, and nerved with similar lines, especially near the margin, pale green and unspotted beneath; margins sinuate and armed with brown, deltoid, horny, sharp spines as much as $\frac{1}{4}$ in. long. *Inflorescence* from $2\frac{1}{2}$ –4 ft. high; scape glaucous, branched from below the middle; branches 8–13, erecto-patent, the terminal one the shortest; pedicels about $\frac{5}{8}$ in. long; bracts scarious, deltoid, subulate, 3-nerved, about 1 in. long. *Perianth* pale flesh-colour, yellowish inside, $1\frac{1}{4}$ in. long; tube slightly constricted above the ovary, curved and slightly swollen near the throat, somewhat hexagonal; lobes not quite as long as the tube, with whitish margins and central striped area, slightly recurved at the apex. *Filaments* scarcely exserted; anthers oblong, orange.—ALWIN BERGER.

Figs. 1 and 2, stamens; 3, pistil:—*all enlarged*.



TAB. 7837.

ALOE PENDENS.

Native of Arabia.

Nat. Ord. LILLACEAE.—Tribe ALOINEAE.

Genus ALOE, Linn.; (*Benth. et Hook. f. Gen. Plant.* vol. iii p. 776)

ALOE pendens; fruticosa, sobolifera, pendula, foliis subdistichis deflexis et patenti-recurvatis angusto ensiformibus, sensim acuminatis ima apice subteretibus integris supra leviter turgidis subtus inferne valde convexis læte viridibus, dentibus parvis remotii deltoideis, scapo adscendente gracili 3–4-ramoso, racemis elongatis cylindraceis, pedicellis bracteis late ovatis acuminatis striatis longioribus, perianthii cylindracei subtrigoni luteo-rubri segmentis parvis ovatis tubo triplo longioribus.

A. pendens. Forsk. *Flor. Ægypt. Arab. Descr.* p. 74. Baker in *Jorn. Linn. Soc.* vol. xviii. p. 181. Engler, *Notizbl. Berl. Bot. Gart.* vol. i. p. 5 (1897).

I am indebted to my old friend Sir Thomas Hanbury, F.L.S., for specimens of the very interesting Aloe here figured, together with a photograph, and excellent description drawn up from the living plant by his Curator, Mr. Alwin Berger. It is a native of Southern Arabia, where it was discovered by Forskål growing on rocks at Hadjeh. It has been collected by Schweinfurth on Djebel Bura, at about three thousand feet elevation. The plant from which the figure is taken was received by Sir T. Hanbury from the Botanical Gardens of Berlin, and it flowered at the Palazzo Orenco, Mortola, for the first time in March, 1902.

Mr. Berger remarks that in his opinion its nearest allies are the Arabian *A. inermis*, Forsk., and two South African species, *A. microstigma* and *A. consobrina* of Salm Dyck, all related by their small, cylindric flowers in elongate racemes, and narrow, ensiform, often spotted leaves. He observes that Forskål describes the flowers as of a yellow colour, and feels convinced that this is the case only in plants growing in shady places, as may be seen under such conditions, both in Naples with Mr. C. Sprenger, and in the Botanic Garden at Palermo.

Descr.—Shrubby; suckers many. *Stem* solitary, about sixteen inches long, and an inch and a quarter in
JUNE 1ST, 1902.

diameter, pendent; bark scaly; internodes about an inch long. *Leaves* seventeen to eighteen inches long, by one and a half to two inches broad, and three-quarter of an inch thick towards the base, patent, deflexed and recurved, very fleshy, narrowly ensiform, acuminate, slightly turgid above, convex beneath, margin very narrowly horny and reddish or yellow; teeth four to six-tenths of an inch apart, small, deltoid, about one-tenth of an inch long, tip edentate for two and a half to three inches, terete or semi-terete; leaves of young shoots distichous, on older branches convex on both surfaces, especially towards the base, sheath spotted and striped with white. *Inflorescence* about thirty inches long; scape ascending, slender, twice or thrice branched; scales few, deltoid. *Racemes* erect, cylindric, many-flowered, about six to eight inches long and two broad, the terminal longer; pedicels five to six-tenths of an inch long, erectopatent; bracts shorter, deltoid, ovate, acute, marcescent. *Flowers* drooping, nearly an inch long, cylindric, subtrigonous, not constricted, dull yellowish-red; segments connate for one-third their length, yellow within, tips slightly recurved, with paler margins, and three dark central streaks. *Stamens* and *style* very shortly exserted. *A. Berger.*

Fig. 1, flower; 2 and 3, stamens; 4, pistil; *All enlarged*; 5, *reduced* view of whole plant from a Photograph.



ALOE PENTAGONA. PENTAGONAL ALOE.

Class and Order.

HEXANDRIA MONOGYNIA.

*Generic Character.—Vid. No. 756.**Specific Character and Synonyms.*

ALOE *pentagona*; (*caudex imbricato-foliatus; flores e minoribus, erecti;*) foliis axem ex deorsum pentagono-decussatim superne versus spiraliter sparsimque ambientibus, ovato-acuminatis, pulvinato-craffis, brevibus, rigidis, carinato-cuspidatis, atrovirentibus, glabris vel minutissime elevato-puncticulatis, margine carinaque denticulatis, inferioribus divaricatis, superioribus, convergentibus, supremis minoribus pallidioribus convoluto-concavis (*nunc subtus tuberculis paucis albidis parum salientibus notatis*); caule ramofo; racemis multifloris, sparsis, laxis; pedicellis corolla 3—4plo brevioribus, bracteas æquantibus; corolla columnaritubulosa, explicata, glabra, in lacinulas sex parabolicas regulari-patulas tubo quadruplo breviores interiores subangustiores suberectiores soluta; staminibus tubo isometris, subdeclinatis, alternis brevioribus; stigmate simplici. G.

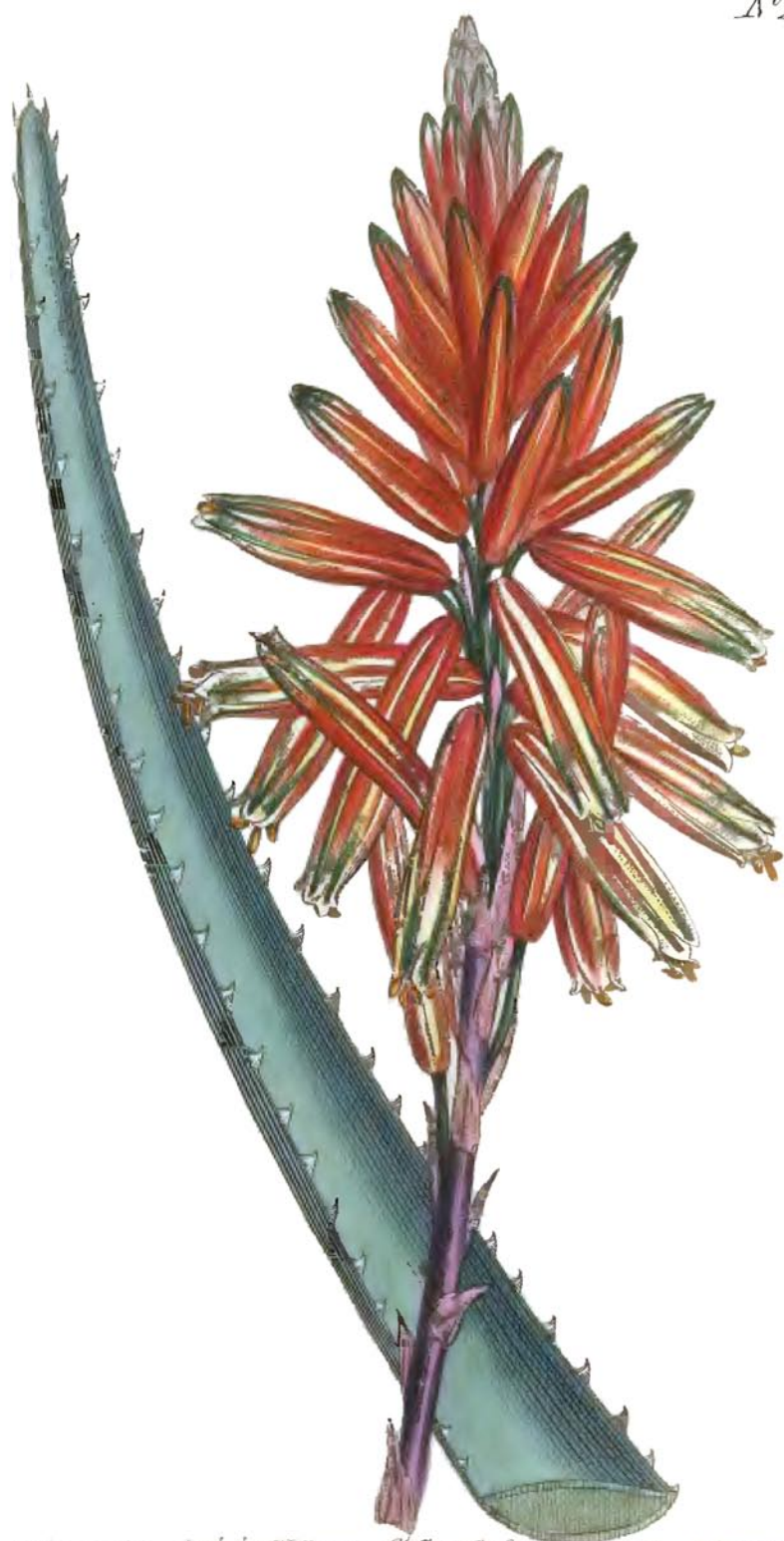
ALOE *pentagona*. Haworth, Linn. Transf 7. 7. n. 6.ALOE *spiralis*. β . *pentagona*. Hort. Kew. 1. 471. Willd. Sp. Pl. 2. 191; (*exclusa passim var. α .*)

We have been induced to consider the present plant as specifically distinct from *spiralis*, not so much by the difference in the arrangement and expansion of the leaves, as by the total absence of the transverse wrinkles, so remarkable in the corolla of the latter, in which there are also other minuter distinctions. But still they may possibly be mere varieties of each other. MILLER, in his Dictionary, when speaking of *spiralis*, says, “there

“there is a variety of this fort which has been raised from seeds, which is much larger, the leaves thicker, and the flowers grow upon taller foot-stalks; but this is only a feminal variety.” But whether he had the present plant in view, or some real variety of *spiralis*, we cannot now determine from such loose description.

Native of the Cape of Good Hope. Cultivated in the Kew Gardens. We have to thank Mr. HAWORTH for the specimen.
G.

L^v 472



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ALOË PERFOLIATA, *var.* SUCCOTRINA.

SUCCOTRINE ALOE.

Class and Order.

HEXANDRIA MONOGYNIA.

Generic Character.

Cor. erecta, ore patulo, fundo nectarifero. *Filam.* receptaculo inferta.

Specific Character and Synonyms.

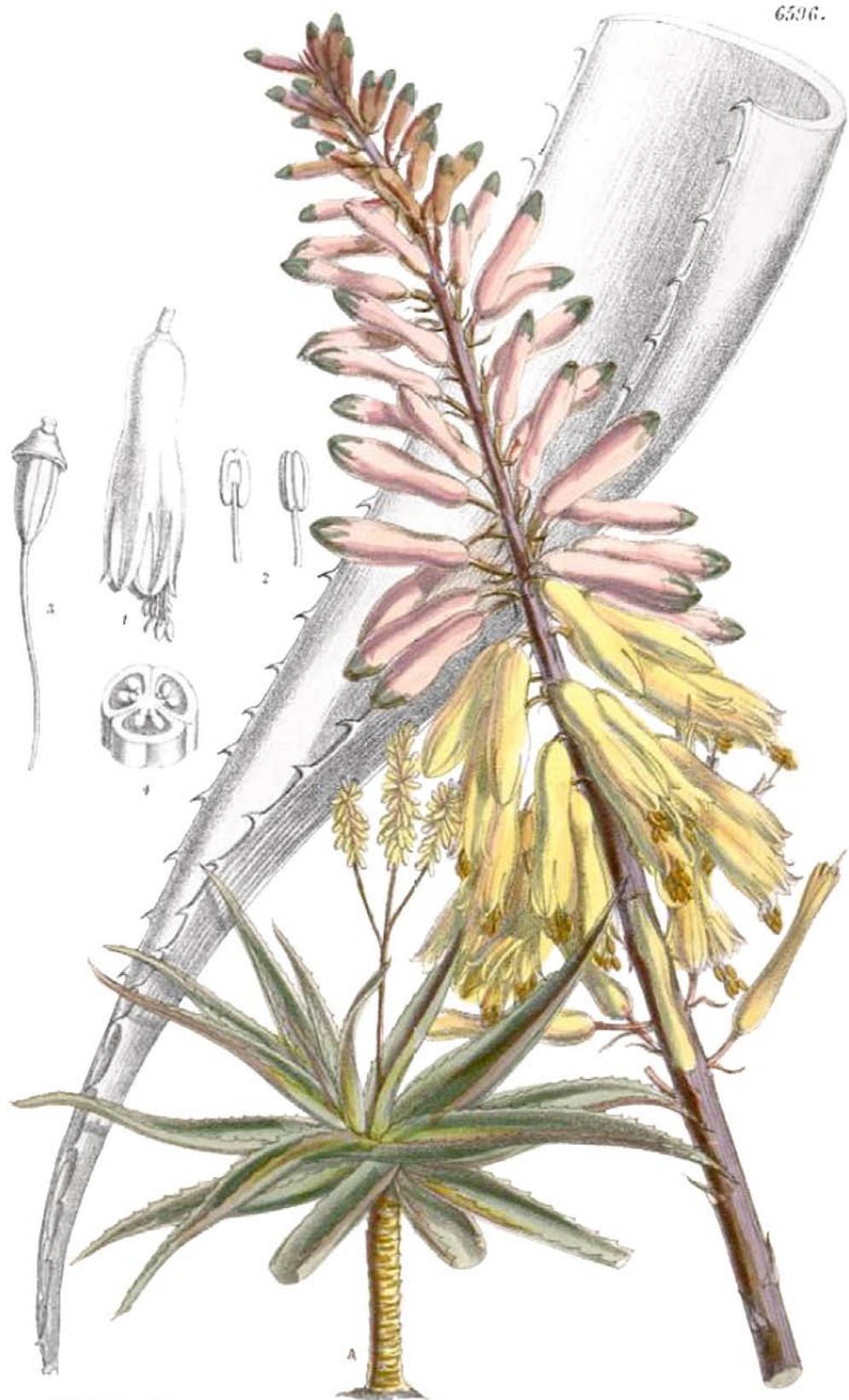
ALOË *perfoliata* foliis caulinis dentatis amplexicaulibus vaginantibus, floribus corymbosis cernuis pedunculatis subcylindricis, *var. δ Succotrina. Ait. Kew. v. 1. p. 466.*

ALOË *vera* foliis longissimis et anguissimis marginibus spinosis, floribus spicatis. *Mill. Dict.*

The figure here given was drawn in January 1799, from a plant in full bloom in the dry stove of the Apothecaries Garden at Chelsea; Mr. FAIRBAIRN informs me that it flowers regularly every year: the plant itself, supposed to be fifty years old, has a stem the thickness of one's arm, naked for the space of about four feet from the ground, then dividing into several large heads, formed of the leaves growing in clusters, from the centre of which arise the flowering-stems, two feet or more in length, producing spikes of flowers frequently much longer than those represented on the plate; these before they open are upright, when fully blown they hang down, and when out of bloom they turn upwards.

This undoubtedly is the *Aloë vera* of MILLER, and the *perfoliata var. succotrina* of Mr. AITON, that which produces the Succotrine Aloes of the shops, and is said to grow in the island of Socotra or Socotora, in the Straits of Babelmandel; it is therefore highly interesting as a medicinal plant, and very desirable as an ornamental one.

It is propagated by offsets, which it does not produce in any plenty, and to have it in perfection, it must be treated as a dry-stove plant.



M. S. Ad. N. P. L. L.

Virens: Brooks Day & Son, Inc.

L. Reeve & Co. London

TAB. 6596.

ALOE PERRYI.

Native of the Island of Socotra.

Nat. Ord. LILIACEÆ.—Tribe ALOINEÆ.

Genus ALOE, Linn.; (*Baker in Journ. Linn. Soc.* vol. xviii. p. 152.)

ALOE *Perryi*; caule brevi simplici, foliis 12–20 dense rosulatis lanceolatis acuminatis subpedalibus e basi ad apicem sensim angustatis glauco-viridibus rubro-tinctis facie canaliculatis dentibus marginalibus deltoideo-cuspidatis parvis pallide brunneis, pedunculo deorsum applanato, racemis 1–3 oblongo-cylindricis, pedicellis flore 3–4-plo brevioribus, bracteis minutis lanceolato-deltoideis, perianthii rubro-lutei pollicaris segmentis oblongis tubo cylindrico triplo brevioribus, genitalibus demum breviter exsertis.

A. Perryi, *Baker in Journ. Linn. Soc.* vol. xviii. p. 161.

The subject of the present plate is a plant of unusual interest. It is said that Aloes was known to the Greeks as a product of the island of Socotra as early as the fourth century before the Christian era; and yet till very recently no material has been obtained from which the botanical characters of the plant which yields the drug could be settled. In the absence of any precise information on the subject, botanists and pharmacists have supposed that the plant that furnished it was an Aloe which was figured in 1697 by Commelinus from the Medical Garden at Amsterdam under the name of "*Aloe Succotrina Angustifolia Spinosa flore purpureo*," a species which was called *Aloe vera* by Philip Miller, and has been characterized by Lamarck and several later authors under the name of *Aloe Succotrina*. By the researches of Mr. Bolus this plant has now been ascertained to be really a native of the Cape of Good Hope, and the Socotra Aloe proves to be a species confined to that island, closely allied in general habit to the well-known Barbadoes Aloe (*Aloe vera*, Linn. = *A. barbadensis*, Miller = *A. vulgaris*, Lam.), but differing in its shorter leaves, and especially in its flowers, which have a tube much longer than the segments, and are arranged in looser racemes, on

DECEMBER 1ST, 1881.

longer pedicels. Our first specimens of the Socotra plant were brought to Kew in 1878 by Mr. Wykeham Perry, but these were without flower. A year later we had similar examples brought by Mr. Jas. Collins; but for full knowledge of the plant and of its best differential characters we are indebted to Professor Bayley Balfour of Glasgow, who made a thorough exploration of the island last year under the auspices of the British Association for the Advancement of Science, and brought home a collection of plants, which includes a large number of new genera and species. Our drawing is made from living plants presented by Dr. Balfour to Kew, two of which flowered in the Succulent-house in the summer of the present year. He found it spread widely through the island, especially in the limestone tracts, ranging from sea-level to an altitude of 3000 feet; and he has also found in small quantity what appears to be a second endemic Socotran species with dwarfer habit and spotted leaves.

DESCR. *Trunk* in the cultivated examples simple, about a foot in length, one and a half or two inches in diameter. *Leaves* twelve to twenty in a dense rosette, lanceolate, a foot long, three inches broad at the base, tapering gradually to an acuminate point, a dead rather glaucous green with a reddish tinge towards the edge, channelled all the way down the face, one-sixth of an inch thick in the centre, the small deltoid-cuspidate pale-brown marginal prickles about a quarter of an inch apart. *Inflorescence* one and a half or two feet long, generally with two or three forks, rarely simple; peduncle purple-tinted, flattened towards the base; racemes oblong-cylindrical, three to six inches long, two inches in diameter; pedicels red, a quarter or a third of an inch long, the lower ones cernuous; bracts lanceolate- deltoid, shorter than the pedicels. *Perianth* cylindrical, an inch long, bright red, with a green tip in an early stage, turning yellow as it matures; tube cylindrical, rather constricted at the middle; segments oblong, a third as long as the tube. *Stamens* and *style* finally slightly exerted.—*J. G. Baker.*

Fig. 1, A flower complete; 2, back and front view of anthers; 3, pistil; 4, horizontal section of ovary:—*all more or less enlarged.*



ALOE PICTA. SPOTTED-LEAVED ALOE.

Generic Character.—*Vid. No. 756.**Specific Character and Synonyms.*

ALOE *pic̃ta*; (*modobreviternude vel modototus folioso-subcaudescens; flores e majoribus, tereti-trigone tubulosi, recti, pendulocernui;*) foliis confertim ambientibus, patentissimis, crassis, ovato-lanceolatis, subglaucescentibus, maculis oblongis inæqualibus utrinque vage pictis, spinis denuo fulvescentibus dentato-marginatis; racemo densius spicato-pyramidato; pedicellis erecto-divergentibus, corollam subadæquantibus; bracteis sphacelatis his subtriplo brevioribus; staminibus subinclusis. G.

ALOE *pic̃ta*. *Thunb. Diff. n. 4. Prod. 61. Decand. Pl. Gr. tab. 97. Willd. Sp. Pl. 2. 186; (castigata synonymia.)*

A. saponaria; v. obscura. *Haworth. Linn. Transf. 7. 17; (excl. Braddl. Succ.)*

A. perfoliata; obscura. *Hort. Kew. 1. 467.*

A. obscura. *Mill. Dict. ed. 8. n. 6.*

A. perfoliata. *μ. Linn. Sp. Pl. ed. 2. 1. 458.*

A. africana maculata spinosa minor. *Dill. Hort. Eltham. p. 18. tab. 15. fig. 16.*

Native of the Cape of Good Hope. Cultivated in SHE-RARD's garden at Eltham. Requires to be kept in a good greenhouse, where it flowers about August or September. Has been generally confounded with the Common Soap-Aloe, which has a short subumbellate raceme; and will be given in one of the subsequent numbers. Our drawing was made from a plant in Mr. HAWORTH's collection. G.

NOTE.

In No. 837 (ALOE VERRUCOSA) l. 12. dele "*Thunb. 9. Prod. 61;*" *dum in loco adjicias synoyma sequentia;*

ALOE *disticha*. *Thunb. Diff. p. 7. n. 9. Prod. 61.*

A. sessilis foliis carinatis utraque verrucosis bifariam versis.
Mill. Dict. ed. 7, n. 20.

A. africana foliis longis conjugatis supra cavis margaritiferis flore rubro elegantissimo. *Boerb, Ind, Alt. 2, tab. 131.*

A. africana, &c. &c. Till. Pisam. tab. 8.



ALOE PLICATILIS. FAN ALOE,

Class and Order.

HEXANDRIA MONOGYNIA.

Generic Character.

Cor. erecta, ore patulo, fundo nectarifero. *Filam.* receptaculo inferta.

Specific Character and Synonyms.

ALOE *plicatilis* subcaulis, foliis linguiformibus lævibus distichis, floribus racemosis pendulis cylindricis. *Ait. Kew. v. 1. p. 470.*

ALOE *dysticha* var. *ε.* *Linn. Sp. Pl. ed. 3. p. 459.*

ALOE *plicatilis* foliis ensiformibus inermis ancipitibus, floribus laxè spicatis, caule fruticoso. *Mill. Dict. ed. 5. 4to.*

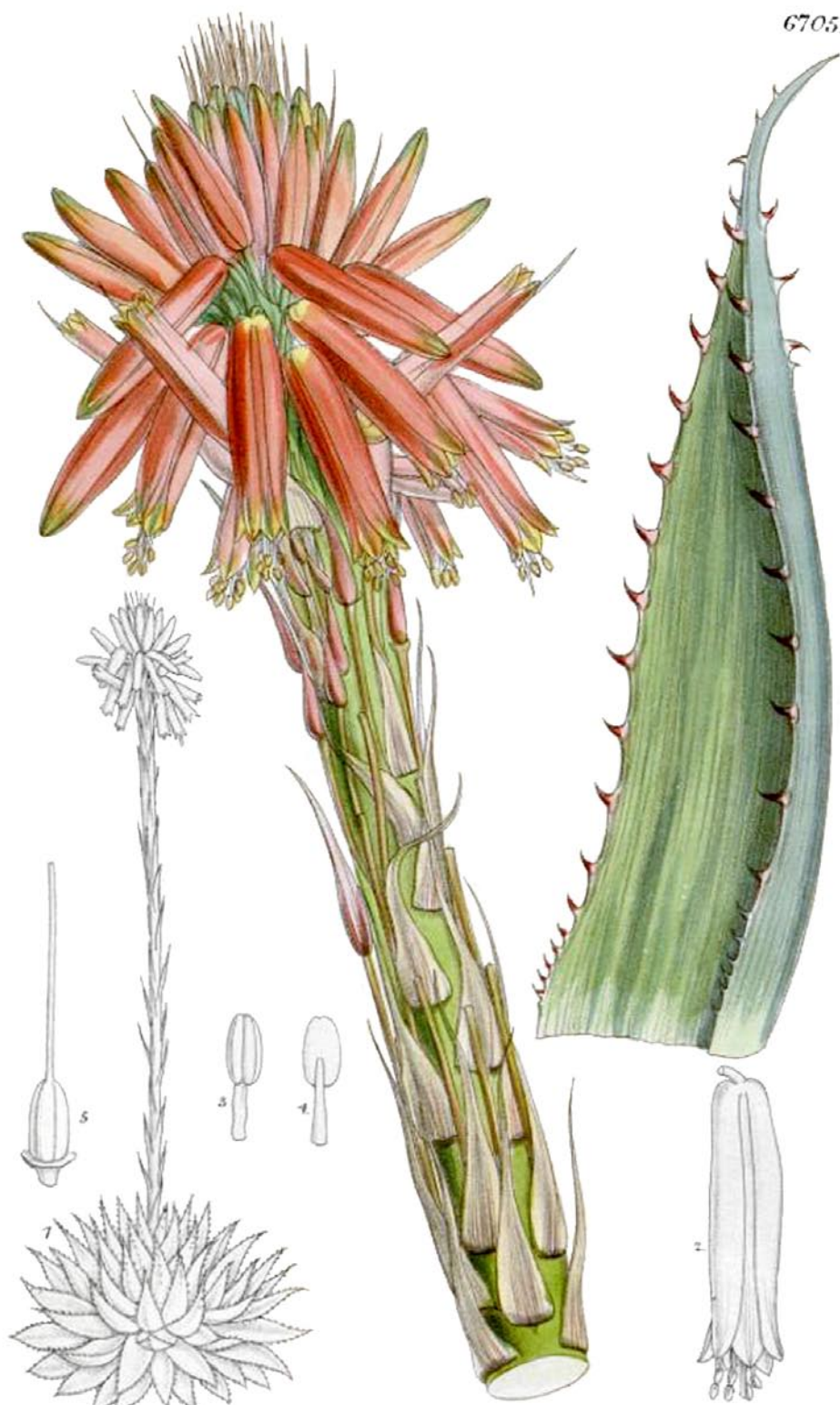
ALOE *africana* arborefcens montana non spinosa, folio longissimo plicatili, flore rubro. *Comm. Hort. 2. p. 5. t. 3.*

“The Fan Aloe grows to the height of six or seven feet, “with a strong stem, towards the upper part of which are “produced two, three, or four heads, composed of long, “compressed, pliable leaves, of a sea-green colour, and ending “obtusely; these are placed in a double row, lying over each “other, with their edges the same way; the flowers are produced in short loose spikes, are of a red colour, and appear “at different times of the year.” *Mill. Dict.*

LINNÆUS originally made this plant a variety of his *Aloe disticha*, the leaves in their mode of growth are indeed truly distichous, few plants afford a better example of such, but they differ materially from those of the real *disticha* both in form and colour: Mr. MILLER, with great propriety, made distinct species of it, by the name of *plicatilis*, or *Fan Aloe*, which Mr. AITON has continued; and by the name of *Fan Aloe* it is very generally known: we may remark, however, that though this term may be justified by the form into which the leaves expand, the *folium plicatile* of LINNÆUS is a very different kind of a leaf.

Both the foliage and flowers of this plant are very handsome, in the course of many years it grows to a great size; in the Chelsea Garden there are some fine plants of it, which grew there in the time of MILLER, by whom it was cultivated in 1731.

It is a native of Africa, requires the same treatment as the other Aloes, and is propagated by dividing and planting its heads.



M.S. del. J. N. Pich. lith.

Vincenz. Brooks, Day & Son. Imp.

L. Reeve & Co. London.

TAB. 6705.

ALOE P RATENSIS.

Native of the Cape of Good Hope.

Nat. Ord. LILIACEÆ.—Tribe ALOINEÆ.

Genus ALOE, Linn.; (*Benth. et Hook. f. Gen. Pl.* vol. iii. p. 776.)

ALOE *pratensis*; acaulis, foliis permultis dense rosulatis oblongo-lanceolatis acuminatis semipedalibus viridibus glauco tinctis immaculatis obscure verticaliter lineatis dorso superne tuberculato-aculeatis margine aculeis magnis patulis rubro-brunneis armatis, pedunculo valido simplici bracteis vacuis multis scariosis ovatis acuminatis prædito, racemo denso simplici, pedicellis ascendentibus flore sæpe longioribus, bracteis magnis ovatis acuminatis, perianthii splendide rubri tubo brevissimo campanulato, segmentis lanceolatis, genitalibus demum breviter exsertis.

A. *pratensis*, Baker in *Journ. Linn. Soc.* vol. xviii. p. 156.

This is a well-marked and very handsome new species of the dwarf acaulescent group of Aloes, allied to *A. humilis* and *A. aristata*. We first received it from Mr. Thomas Cooper, of Reigate, in whose rich collection it flowered several years ago. In 1872, Professor McOwan sent two fine specimens for the Herbarium, gathered on the summit of the Boschberg, at an elevation of 4500 feet above sea-level. Lately it has flowered again in the collection of Mr. Justus Corderoy, of Blewbury, near Didcot, from whose specimen the present drawing was made.

DESCR. Acaulescent. *Leaves* sixty or eighty in a dense rosette, oblong-lanceolate, acuminate, the outer ones five or six inches long, the inner ones growing gradually smaller, an inch and a half broad at the base, exclusive of the spines, narrowed gradually from the base to the point, firm in texture, an eighth of an inch thick in the middle, green with a slight glaucous tinge, obscurely lineate vertically on both back and face, not spotted, furnished on the margin with large red-brown deltoid cuspidate horny spines, a few of which extend to the back of the leaf near its tip. *Peduncle* short, stout, simple, a foot or more in length,

AUGUST 1ST, 1883.

furnished with copious ascending scariose ovate acuminate empty bracts. *Raceme* dense, simple, finally half a foot or a foot long; pedicels ascending, often longer than the flowers; bracts of the inflorescence just like those of the peduncle. *Perianth* cylindrical, bright red tipped with green, an inch and a quarter long; segments lanceolate, united only in a short cup at the base. *Stamens* and *style* finally a little exserted from the perianth; anthers minute, oblong, orange-yellow.—*J. G. Baker*.

Fig. 1, The whole plant, *much reduced*; 2, a flower, *slightly enlarged*; 3, an anther, viewed from the face; 4, an anther, viewed from the back; 5, pistil:—*all enlarged*.

N^o 1345.



G. H. Edwards Del.

Pick. by J. Currier Walworth Jan 1811.

E. J. Sargent Sculp.

ALOE RADULA. RASP-LEAVED ALOE.

Class and Order.

HEXANDRIA MONOGYNIA.

*Generic Character.--id. No. 756.**Specific Character and Synonyms.*

ALOE *Radula*; (*ecaudicata; annosior cespitosim stolonifera; flores e minoribus, erecti;*) foliis radicalibus, plurimo ordine fasciculato-compactis, divaricatis divergentibus, incurvulis recurvulifve, lanceolato-fusculatis, plano-convexis, coriaceo-crassis, faturate viridibus, per tubercula cretaceo-albicantia, mutica, in prona parte grossiora laxius, in supina minutiora creberrime, radulae more asperatis; caule gracili flexili laxe racemoso; pedicellis corollae quater brevioribus, bracteis æquantibus, corollae sextriato-tubulosa, basi turgidula, usque circa medium sexfida, revoluta bilabiata, labio infimo subdepressiore; laciniis divergentibus, lineari-oblongis, obtusis, imarum duabus lateralibus convoluto-angustatis; staminibus tubum æquantibus, alternantibus; stylo germen æquante; stigmatibus tribus minutis. G.

ALOE *Radula*. Jacquin. Hort. Schœnb. 4. tab. 35.

ALOE *attenuata*. Haworth in Linn. Transf. 7. 11. n. 18.

ALOE *africana margaritifera minor*, foliis multo longioribus.
Boerb. Index. Alt. 2. 130. n. 27.

This plant seems never to have been distinctly recorded except in the books above quoted; but has been most probably confounded among the varieties of *margaritifera*; from which it differs, by slenderer far attenuated leaves, as well as in the flatness and roughening or toothedness of their inner surface, which resembles that of a file or rasp, and is of a yellowish green

green colour; by its corolla not being subfessile, as well in being slenderer and parted nearly to the middle, with farther divergent and spirally revolute segments; the *stem* is also flexile and far slenderer, with fewer and more distant *flowers*. *Leaves* from one and a half to near three inches long, about half an inch across at their base, gradually attenuated, elongated-cuspidate; the tubercles are smaller and of a chalky whiteness, without the pearl-like hue of those on the leaves of *margaritifera*. Mr. HAWORTH, to whom we are so often and so much obliged for his kind communications, has a plant of this species, which by its numerous suckers forms a compact hemispherical bush a foot or more in diameter.

Native of the Cape of Good Hope; blooms in the greenhouse during the latter months of summer. *G.*



ALOE RECURVA. RECURVED ALOE.

Class and Order.

HEXANDRIA MONOGYNIA.

*Generic Character.—Vid. No. 1352.**Specific Character and Synonyms.*

ALOE *recurva*; (*ecaudicata*; *flores a minoribus, erecti, bilabiiati*;) foliis paucis, radicalibus, plurifariam ambientibus, recurve divaricatis, brevibus, pulvinato-craffis, oblongo-attenuatis, plano convexis, rore canis, a supino glabratis lineisque paucis faturationibus inscriptis, a pro no denfe papillofis, margine cartilagineo-ferrulatis; caule tenui flexili; racemo laxo; corolla ab imo gibberula attenuato-tubulosa; rictu revolutim difpanfo; ftaminibus tubo æqualibus. G.

ALOE *recurva*. *Haworth. Linn. Transf.* 7. 10. n. 17. *Hort. Kew. ed. 2. v. 2. 300.*

ALOE *tricolor*. *Id. loc. cit. App.* 25. n. 2.

ALOE *venosa*. *Lam. Encyc.* 1. 89. n. 16.

ALOE *americana* Hyacinthi flore. *Weinm. Phyt. t.* 71. α.

ALOE *africana humilis* folio nonnihil reflexo, floribus ex albo et rubro variegatis. *Commel. Prælud.* 80. fig. 29.

A native of the Cape of Good Hope; from whence it was introduced into the Dutch gardens by Governor VAN DER STEL, in 1701; into the English, more recently, by Mr. MASSON. The leaves are very apt to turn red, if long exposed in the open air. Mr. HAWORTH, from whom we had the specimen, tells us that it is very apt to rot; and that more than usual care is required to preserve it.

Our specimen is somewhat smaller than those figured by WEINMAN and COMMELIN; there were probably older, or had been better cultivated. Seems to us to be intermediate between *rigida* and *arachnoides*. G.



ALOE RETUSA. CUSHION ALOE.



Class and Order.

HEXANDRIA MONOGYNIA.

Generic Character.

Cor. erecta, ore patulo, fundo nectarifero. *Filam.* receptaculo inferta.

Specific Character and Synonyms.

ALOE *retusa* acaulis foliis quinquemariis deltoideis. *Thunb. Aloe, n.* 15. *Ait. Kew.* 471.

ALOE *retusa* floribus sessilibus triquetris bilabiatis labio inferiore revoluto. *Linn. Sp. Pl.* 459.

ALOE *africana* brevissimo crassissimoque folio, flore viridi. *Comm. hort.* 2. p. 11. t. 6. *Till. pif.* 6. t. 5.

Though the flowers of this Aloe have little to recommend them, there is much to admire in the form and structure of leaves; and this pleasing circumstance attends it, it is perfectly distinct from all the other species: when first introduced, it was no doubt an object of great admiration; FAIRCHILD, the celebrated Gardener of Hoxton, who preceded MILLER, had it engraved, with several other succulents, on a plate which is prefixed to Dr. BLAIR's *Botanic Essays*, and which he inscribed to the Doctor, betwixt whom and Mr. FAIRCHILD there appears to have subsisted a great degree of intimacy: th *Essays* were printed in 1720.

This species is a native of the Cape, and flowers in June, but not regularly so, increases very fast by offsets: Mr. AITON makes it as he does all the Aloes indiscriminately, Dry Stove Plant, but it may be kept in a good green-house, taking care to place it in the driest and most airy part, and to guard it at all time from much wet, but more especially in the winter season.



ALOE RHODACANTHA. RED-SPINED

GLAUCOUS ALOE.

Class and Order.

HEXANDRIA MONOGYNIA.

Generic Character.—*Vid. No. 765.*

Specific Character and Synonyms.

ALOE *rhodacantha*; (*caudex brevis; junior totus foliosus; vetustior infra denudatus; flores recti, cylindrici, e majoribus;*) foliis amplexicaulibus, conferte ambientibus, lanceolato-acuminatis, brevibus, patulis, mollibus glaucis, spinis densioribus rectis fulvis margine et nunc parce acuminibus vagis ad summum dorsum munitis; caule simplici toto fere ab imo bracteis sphacelato-membranaceis latius lanceolatis stipato; racemo spicatum producto, rariusculo; pedicellis erecto-divergentibus, flori subæqualibus; corolla pendulo-cernua, laciniis basin usque liberis, apice breviter revolutis; filamentis has æquantibus; stigmate acutiusculo. G.

ALOE *rhodacantha*. *Decandolle Pl. Gr.* 41. tab. 41.

A. glauca. *Harworth. Linn. Transf.* 7. 18. n. 39.

A. perfoliata. v. *Wild. Sp. Pl.* 2. 186.

A. perfoliata. ζ. *glauca*. *Hort. Kew*, 1. 466. *Mart. Mill. Dict. excl. syn.*

A. perfoliata. κ. *Linn. Sp. Pl. ed. 2, v. 1.* 458. *Thunb. Diff.* 5. n. 3.

A. africana spinis rubris ornata. *Weinm. Phyt. t.* 71.

A. africana foliis glaucis margine et dorso parte superiore spinosis, flore rubro. *Comm. Præl.* 75. tab. 24. *cum fl.*
Hort. Amst 2. 23. tab. 12. *sine fl.*

DECANDOLLE observes that this species differs from *mitræformis* (No. 270) by a trunk that is not arboresecent, soft glaucous

glaucous *leaves* with red *spines*, *flower-stem* nearly covered with *bractes*, and a *corolla* green at the top, as well as in habit and time of flowering. A native of the Cape of Good Hope; of long standing in our collections. Should be kept in the greenhouse. Our drawing was made from a plant that flowered last summer at Mr. HAWORTH's, Little Chelfea. G.

ERRATA.

No. 994, l. 20, pro "*racemosa*" lege "*racemosa*."

No. 1260, l. 24, pro "1." lege "2."

No. 1272, l. 14, pro "*nec*" lege "*nunc*."



Gyde Edward Del.

Rebby J. Carter. "Proc. Acad. Nat. Sci. Phila." 1868.

W. H. Burdett. 1868.

ALOE RIGIDA. STIFF-LEAVED ALOE.

Class and Order.

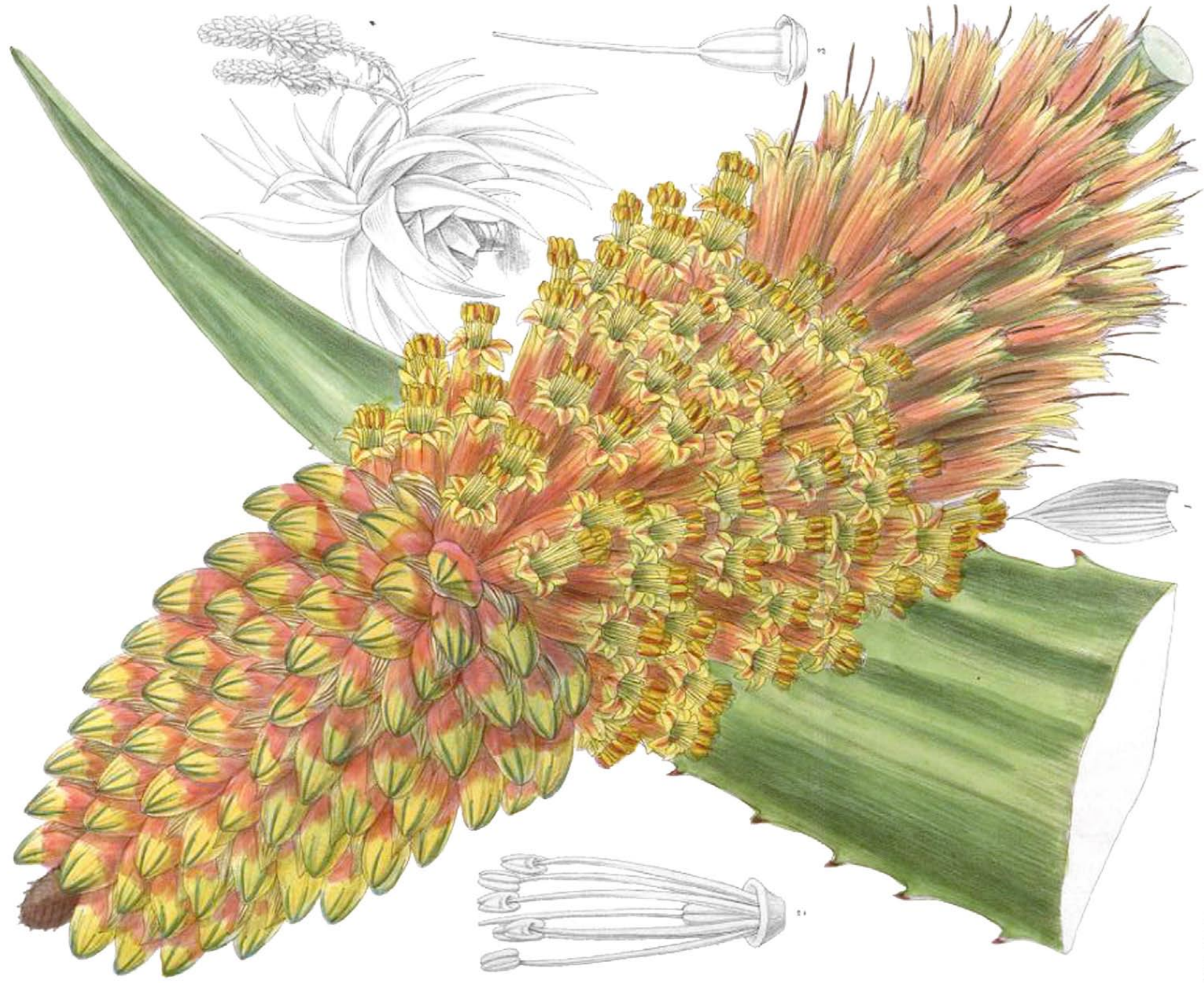
HEXANDRIA MONOGYNIA.

*Generic Character.—Vid. No. 756.**Specific Character and Synonyms.*

ALOE *rigida*; (*caudex subnullus vel palmaris, imbricato-foliatuſ; flores minores, erecti*;) foliis axem multifariam ambientibus, oblongo-acuminatis, carinato-cuspidatis, brevibus, coriaceo-craſſis, atrovirentibus, puſulatim corrugatis, recurvato-divaricatis, ſupra convoluto-concavis, infra convexis; caule ſimplici, nudo; racemo ſparſo, rariuſculo; pedicellis corolla triplo brevioribus, bractea ſubduplo longioribus; corolla bilabiato-tubuloſa, ſextſtriata, tertiam uſque ſextida; laciniis tribus ſuperioribus convergentibus, recurvato-erectis, planioribus, obtuſatis; inferioribus divergentibus, revolutodeflexis, canaliculatis; ſtaminibus ſubdeclinatis, alterne brevioribus, tubum aquantibus; ſtylo illis ſubduplo brevioribus ? ſtigmatibus obtuſulo, obſolete puberulo. G.

ALOE *rigida*. Decandolle, *Pl. Gr. tab.* 62.ALOE *expanſa*. Haworth, *Linn. Tranſ.* 7. 8. n. 8.ALOE *cylindracea*. β . *rigida*. Lam. *Dict.* 89. n. 19.

A greenhouſe plant. Native of the Cape of Good Hope; whence, according to Mr. HAWORTH, it was introduced into our collections by Mr. MALCOLM. Blooms during the ſummer months. Why Mr. HAWORTH ſhould doubt of its being the ſame with DECANDOLLE's plant we cannot gueſs, ſince it agrees in every point with the very detailed and minute deſcription of that author, and ſufficiently with the figure given in the ſame work. The ſpecimen was kindly communicated by Mr. HAWORTH. G.



TAB. 7882.

ALOE RUBROVIOLACEA.
Native of Southern Arabia.

Nat. Ord, LILLACEAÆ.—Tribe ALOINEÆ.

Genus ALOE, Linn.; (*Benth. & Hook. f. Gen. Plant* vol. iii. p. 776.)

ALOE (Eualoe) *rubroviolacea*; caule crasso monocephalo, foliis dense rosulatis bipedalibus patenti-recurvis subfalcatis late lanceolato-ensiformibus ad $\frac{3}{4}$ poll. crassis glauco-viridibus pruinoso-violacea supra planiusculis subtus convexis marginibus corneis rubris remote spinoso-dentatis dentibus $\frac{1}{6}$ poll. longis incurvis rubris apicem versus folii evanidis, scapo valido basi compresso adscendente pare ramoso, spicis binis 2–3-pedalibus 4 poll. diam. cylindraceuti densiflori, bracteis 1–1 $\frac{1}{2}$ poll. longis lanceolatis siccis infra racemum vacuis, floralibus striati albo late marginatis, floribus brevissime pedicellatis pendulis deorsum imbricatis, perianthio 1 $\frac{1}{2}$ poll. longo cylindraceuto $\frac{1}{4}$ poll. diam. pallide rubro, segmentis infra medium connatis apicibus deltoideo-recurvis pallidis, staminibus longe exsertis, antheris ohroleucis demum atro-brunneis.

A. rubroviolacea, *Schweinf in Bull. Herb. Boiss.* vol. ii. App. II. (1894) p. 71.
Notizblatt. Berl. Bot. Gart. vol. i. p. 5 (1897).

For the opportunity of figuring this noble plant I am indebted to my friend, Sir Thomas Hanbury, F.L.S., of La Mortola, who sent to the Royal Gardens, Kew, in March, 1902, a flowering raceme, a leaf, a photograph of the whole plant made by Sir Edmund Loder, Bart., and an excellent detailed description, with notes on its affinities, &c., by Sir Thomas's able Curator, Mr. Alwin Berger, of which I have largely availed myself. Mr. Berger says, "The plant was received from the Berlin Botanic Gardens. It flowered for the first time at the Palazzo Oregno in the spring of 1900, and produced a few capsules with good seed, from which a stock of seedlings has been raised. In the severe winter of last year the flowering scape was injured by the frost." Mr. Berger adds, "The inflorescence is composed at present of two spikes only, but it may become more branched in future. Concerning its allies I think there can be no doubt it belongs to the group with *A. Salm-Dyckiana*, Schult. fil., *A. drepanophylla*, Baker, and *A. chloroleuca*, Baker. It cannot be grouped under *Pachidendron*, for the perianth is not at all clavate, its

MARCH 1ST, 1903.

segments are much longer than the tube, and the bracts are much larger than in that group. None of its allies are found near its habitat, all being South African. It is therefore of high interest in point of view of geographical distribution. A further exploration of Arabia may bring other allies to our knowledge."

Dr. Schweinfurth discovered this species on Mt. Schibam above Menacha in Southern Arabia, near the old castle, at about nine thousand five hundred feet (two thousand nine hundred met.) above the sea.

Descr.—*Stem* very stout, twenty inches high by four in diameter, with a single declinate head of leaves. *Leaves* about two feet long, by six inches broad, densely rosulate, sub-falcate, spreading and recurved, ensiformly lanceolate, about three-fourths of an inch thick, narrowed into a rather obtuse point, pale green, with a faint, violet bloom, nearly flat above; convex beneath, margins horny, red, armed, except towards the tip, with rather distant, shortly incurved, red spines. *Scape* ascending, bearing two branches terminated by large cylindric spikes, each two to three feet long, densely clothed with imbricating, pendulous, pale red flowers. *Perianth* an inch and a half long, cylindric, one-third of an inch diameter. *Segments* connate for one-third of their length, tips spreading, pale, outer with three darker greenish lines, inner with a broader, central, red band. *Filaments* exerted for about one-fourth of their length; anthers oblong, dark ochroleous, at length brownish black.—*J.D.H.*

Fig. 1, bracts; 2, stamen and pistil; 3, pistil:—all except 1 *enlarged*.



J. G. Edwards Del.

Pl. by J. G. Edwards. Woburn, Mass., 1881.

A. Saurifera S. Wats.

ALOE SAPONARIA (β .) SATIFOLIA. LARGEST
COMMON SOAP-ALOE.



Class and Order.

HEXANDRIA MONOGYNIA.

Generic Character.—*Vid. No. 756.*

Specific Character and Synonyms.

ALOE *saponaria*; (*crassene e longe caudescens; flores e majoribus, penduli, cylindrareii;*) foliis caudicem summum divergenter ambientibus, imbricato-confertis, ovato vel oblongato-lanceolatis, lamina maculis (quam in pita triplo-granuioribus) albis verticaliter ellipticis in feries imperfectas subtransversim directas compactis utrinque picta, margine spinis brevibus subirregulariter dentata; caule simplici vel ramoso; racemo umbellatim contracto; pedicellis ascendenter divergentibus, corollæ isometris, bractea fusce nervosa bis longioribus; corolla pendulo-cernua, subclavato-cylindrica, obsolete trigona, leviter curvata, basi infra stricturam subglobose extumescens; laciniis tres partes usque inter se concretis, inde conniventibus, ore brevi patulis; antheris subexclusis. *G.*

ALOE *saponaria*. *Haworth in Linn. Transf. 7. 17. n. 35; (exclusa varietate obscura).*

(α .) *minor*; foliis angustioribus, lateribus rectioribus, sub dio hepatico-fuscescentibus; caule simplici.

A. saponaria. minor. Haworth. l. c.

A. umbellata. Decandolle. Pl. Gr. tab. 98; (excl. synon. jam supra No. 1323 ad pictam citatis.)

A. picta. β . minor; (quoad solum synonymon Hort. Kew.; ea enim Linnæi et Dillenii pictam in No. 1323 spectant.)

A. perfoliata. ε . saponaria. Hort. Kew. 1. 467.

A. perfoliata. θ . λ . Linn. Spec. Pl. ed. 2. 1. 458.

A. disticha. Mill. Dict. ed. 8, n. 5.

A. maculosa:

- A. maculosa*: (*moucheté*.) *Lam. Encyc.* 1. 87. n. 9.
A. caulescens, foliis caulem amplexantibus, floribus aurantiacis. *Bradl. Hist. Pl. Succ. Dec.* 4. 11. *cum Icon.*
A. africana maculata spinosa major. *Dillen. Hort. Eltham.* 17. *tab.* 14. *fig.* 15.
A. caulescens, foliis spinosis maculis ab utraque parte albicantibus notatis. *Comm. Hort. Amst.* 2. p. 9. *tab.* 5. (*sine flore.*) *Boerb. Ind. Alt.* 2. 230. n. 19.
 (β.) *latifolia*; foliis latioribus ovato-lanceolatis saturate viridibus; caule ramofo.
A. japonaria. latifolia. *Haw. l. c. p.* 18.
-

The caudex seldom rises above two feet high; MILLER says, that "the leaves are of a dark green colour spotted with white, resembling soft-soap;" which must account for the whimsical specific name. The bloom appears in August and September. Corolla nearly two inches long, of a beautiful red-lead colour. Native of the Cape of Good Hope; although it has been carelessly called by BRADLEY, "Common spotted American ALOE;" and by others, according to MILLER, "Carolina ALOE." An old inhabitant of our greenhouses. We have to thank Mr. HAWORTH for the present specimen. G.

A. 700



Schwendler Del.

Det. by J. Currier, Waterville, May 1, 1911.

L. J. Vasey Sc.

ALOE SAPONARIA(α). COMMON SOAP-ALOE.

Class and Order.

HEXANDRIA MONOGYNIA.

Generic Character.—*Vid. No. 1352.**Specific Character and Synonyms.*ALOE *saponaria*. *Vide Char. Spec. supra* in No. 1346.*A. saponaria*. *Haworth in Linn. Transf.* 7. 17. n. 385; (*exclusa varietate obscura*).(α .) *minor*; foliis angustioribus sub dio rubro-fuscescentibus; caule simplici vel corymbofo-ramoso. *G.**A. saponaria. minor. Haw. loc. cit.**A. umbellata. Decandolle Pl. Gr.* 98; (*exclusis synonymis quæ supra in No. 1323 ad pictam allegata reperietis*).*A. picta* ; β ; *minor. Willd. Sp. Pl.* 2. 186; (*tantummodo tamen synonymo Horti Kewensis tenus; Dillenii et Linnei enim ad pictam N^o. 1323 spectant*).*A. perfoliata*; ϵ ; *saponaria. Hort. Kew.* 1. 467.*A. perfoliata*; θ , λ . *Linn. Sp. Pl. ed.* 1. 438.*A. disticha. Mill. Dict. ed.* 8. n. 5.*A. maculosa*; (*moucheté*). *Lamarck Dict. Enc.* 1. 87. n. 9.*A. caulescens* foliis caulem amplectentibus floribus aurantiacis. *Bradley Hist. Pl. Succ. dec.* 4. 11. *cum Ic.**A. africana maculata spinosa major. Dillen. Hort. Elth,* 17. *tab.* 14. *fig.* 15.*A. caulescens* foliis spinosis maculis ab utraque parte albicantibus notatis. *Comm. Hort. Amst.* 2. 9. *tab.* 5; *sine fl. Berb. ind. alt.* 2. 230. n. 19.(β .) *major*; foliis latioribus; caule corymbofo-ramoso. *Vide supra No. 1346.*

Altogether a less plant than the variety β , having narrower leaves, which are straighter at the sides; the raceme is also shorter and fewer-flowered. The same plant produces sometimes a simple, at others a corymbosely branched flower-stem. We have never seen the leaves of β assume a liver-coloured tint, which we have always observed those of α to do when placed in the open air during the summer. Our drawing was made from a plant that flowered last year in Mr. HAWORTH's greenhouse. For an account of the species, &c. see No. 1346. *G.*



TAB. 7667.

ALOE SCHWEINFURTHII.

Native of tropical N.E. Africa.

Nat. Ord. LILLACEÆ.—Tribe ALOINEÆ.

Genus ALOE, Linn.; (*Benth. & Hook. f. Gen. Plant.* vol. iii. p. 776.)

ALOE (Eualoe) *Schweinfurthii*; acaulis v. caulescens, foliis perplurimis confertis incurvo-erectis 2–2½-pedalibus a basi compressa biconvexa 7 poll. lata sensim in apicem angustatis medium versus 2 poll. latis plano-convexis pallide viridibus marginibus rubris et aculeis brevibus remotis deltoideis incurvis rubris armatis, scapis pedalibus, inflorescentiæ paniculatæ ramis ascendentibus simplicibus robustis fusco-rubris apicibus floriferis infimis 6-pollicaribus, omnibus bracteis parvis late ovatis acuminatis conspersis, florum racemulis 3–4-pollicaribus erectis densifloris, pedicellis gracilibus erectis apice decurvis, bracteis iis ramulorum consimilibus, floribus 1½ poll. longis pendulis, perianthio cylindraceo recto v. lente curvo basi rotundato infra medium corallino dein aureo, lobis parvis ovatis recurvis, antheris exsertis flavidis, ovario oblongo, stylo recto deflexo, stigmate punctiforme, capsula parva late oblonga obtusa obtuse trigona, valvis coriaceis transverse reticulatis, seminibus parvis late alatis.

A. Schweinfurthii, *Baker in Journ. Linn. Soc.* vol. xviii. (1885) p. 175; in *Fl. Trop. Afr.* vol. vii. p. 467. *Gard. Chron.* 1898, vol. i. p. 197, fig. 76.

Aloe Schweinfurthii is certainly the handsomest of all the species hitherto figured in this work. Of these its nearest tropical African ally is *A. Kirkii*, Baker, tab. 7386, which differs conspicuously in the short pedicels of the flowers, and in the spines of the leaves. Amongst the South African species it comes nearest to *A. virens*, Haw. tab. 1355, a much smaller plant, with a simple raceme, leaves dorsally tubercled, and bright red flowers, with perianth-segments longer than the tube.

The discoverer of this stately plant is Dr. Schweinfurth, who found it in the granite hill of Makporvu, in the Nyam Nyam county of N.E. tropical Africa, lat. 4° 45' N., long. 28° 30' E.; that is on the confines of the Bahr el Ghazal.

It was described originally by Mr. Baker, from dried specimens (distributed by its discoverer, Ser. iii. n. 167 of his Herbarium) as being caulescent; with close set mar-

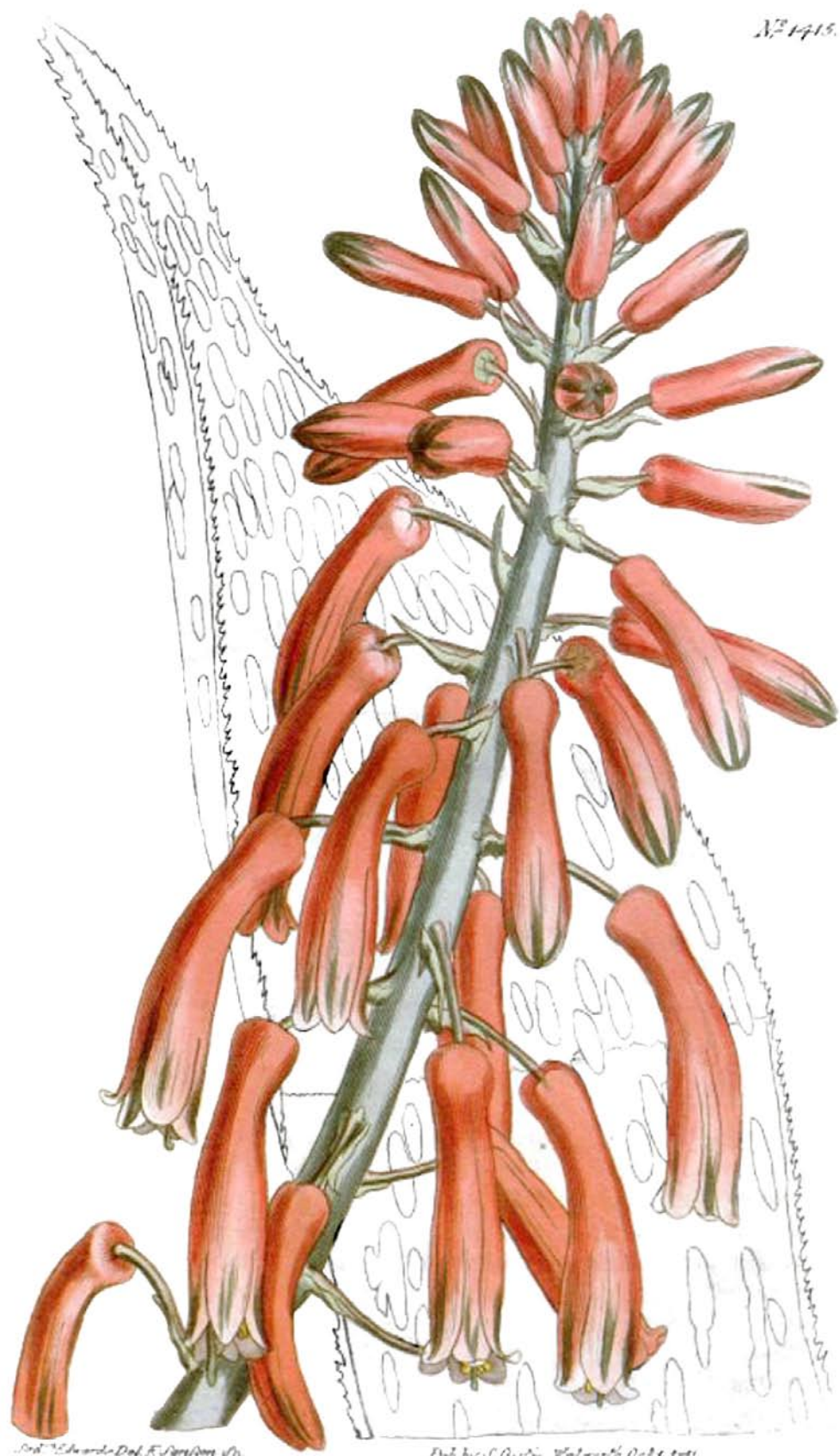
AUGUST 1ST, 1899.

ginal teeth on the leaves, a compressed peduncle, and a short, campanulate perianth-tube.

For the specimen from which the accompanying figure was made, and for a sketch of the whole plant, I am indebted to Commendatore Hanbury, F.L.S., who flowered it in his renowned garden of Pal. Orenco, La Mortola, in February of this year. I have also received a photograph of the whole plant through the kindness of Miss Wilmott, of Gt. Warley, Essex, with which Mr. Hanbury's sketch given here, perfectly corresponds.

Descr.—*Stemless* (as grown at La Mortola). *Leaves* two to three feet long, very numerous, all radical, sub-erect and incurved, tapering from a compressed base seven inches broad to an acute tip, section above the base biconvex, about an inch thick, and across the middle plano-convex, pale green, margins red, armed with rather distant short deltoid incurved red spines about one-sixth of an inch long, and as broad. *Peduncle* about a foot high, terete, red-brown, naked, branching above into a panicle as long as the leaves; branches of panicle rather distant, ascending, pale red-brown, lower a span long, girt at the very base by two short appressed bracts, an inner annular, and an outer broadly ovate acute, bearing above solitary acuminate bracts a quarter to a third of an inch long, of the colour of the branch. *Flowers* in short, oblong racemes, three to four inches long, terminating the branches, crowded, pendulous; pedicels about as long as the flowers, very slender, erect with decurved tips; bracts like those on the branch, but narrower and paler. *Perianth* about an inch long, cylindric, straight or slightly curved, bright red in the lower half, golden-yellow in the upper; lobes very short, obtuse, recurved. *Stamens* shortly exserted, anthers dull yellow. *Capsule* two-thirds of an inch long, broadly oblong, obtuse at both ends, valves very coriaceous, transversely wrinkled. *Seeds* many, one-fifth of an inch long, oblong, surrounded by a hyaline wing.—*J.D.H.*

Fig. 1, Transverse section of a leaf towards the base; 2, upper part of a leaf; 3, portion of a panicle:—all of the *nat. size*; 4, a flower; 5, pistil:—*Both enlarged.*



ALOE SERRULATA. SAW-LEAVED ALOE.

Class and Order.

HEXANDRIA MONOGYNIA.

Generic Character.—Vid. No. 1352.*Specific Character and Synonyms.*

ALOE *ferrulata*; (caudex brevior foliatus; flores e majoribus, nutantes, recti;) foliis multifariam ambientibus imbricato-divergentibus, numerosis, lanceolato-acuminatis, albo-maculosis margine carilagineis ferrulato-denticulatis, apice carinato-triquetris; caule subramoso; racemo multifloro remotiusculo; corolla subclavato-cylindracea compressiuscula ore brevi regulari patula, laciniis pro tribus partibus concretis inde conniventibus, obtusulis; germine columellari, roundate trigono, quam stylus subtriplo breviori stylo filamentis graciliore, puncto stigmatoso obsolete pubescente. G.

ALOE *ferrulata*. Haworth. Linn Transf. 7. 18. Hort. Kew. ed. 2. 2. 295.

ALOE *perfoliata*. λ. *ferrulata*. Hort. Kew. 1. 467. Mart. Mill. Dict.

Very closely allied to *variegata* (supra No. 513;) but is altogether a much larger plant with multifarious ambient leaves not trifariously decussated as in that, which are also of a much duller greyish green, not undulately variegated as there, but marked with largish distinct oblong white blotches; the pedicles are about half the length of the corolla, and not three or four times shorter than that, as in *variegata*. MILLER, in his Dictionary, after describing *variegata*, says, "I have raised a variety of this from seeds which I received from the Cape of Good Hope, with broader and flatter leaves, which spread

spread more than those of the former, and are not so beautifully spotted; but as these plants have not flowered yet, so I do not know if it will prove a distinct species." This may very probably be our present species. Native of the Cape of Good Hope; introduced before 1789.

Our drawing was taken from a plant that flowered this summer in Mr. HAWORTH's collection. *G.*

ERRATA.

No. 870, l. a paginæ calce 3; dele "precedente."

No. 894, l. 8, pro "*Germen* inferum," lege "*Germen* superum."

No. 1112. l. 14, præ verbo "mucronulo" infere "antheris."

No. 1346, l. a paginæ pede 5 post "minor," infere "*Willd. Sp. Pl.* 1. 186."

No. 1391, l. 7, pro "Mafe." lege "MASC. pro "Fæm." FAEM."

———— l. 10, post "*Nux*" dele periodum.

ALOE SOCCOTRINA (β .) PURPURASCENS.
LARGEST SOCCOTRINE ALOE.

Generic Character.—*Vid. No. 1352.*

Specific Character and Synonyms.

ALOE *soccotrina*; (*caudex lignosus, crassus, annosior stolonizanter ramosus; flores regulares, recti, penduli, e majoribus;*) foliis numerosis, sparsis, tandem terminalibus, ambientibus, imbricato-amplexicaulibus, erecto-divergentibus, lorato-atenuatis, convexo-concaviusculis margine cartilagineis spinisque brevibus pallidis sinuato-dentatis; caule simplici; racemo erecto, numerofo, laxiuscule spicato; pedicellis erectiusculis, flori subæqualibus, bractea spichelata convoluta-acuminata longioribus; corolla sexpartita, cylindrica, rotundate trigona, laciniis intimis subduplo latioribus apice rotundatis, extimis dorso carinatis, ore brevi patulo; staminibus subexsertis, alterne sublongioribus; germine oblongo trigono quam stylus ultra quadruplum brevior. G.

(α .) minor. G.

ALOE *soccotrina*. Haw. in *Linn. Transf.* 7. 19. n. 41; (*exclusis perfoliata & Willdenovii et rubescente Decandollei.*) *Decand. Pl. Gr. t. 85. Hort. Kew. ed. 2. 2. 292.*

A. *succotrina*. Blackw. *Herb.* 2. tab. 333. Aloes succotrin. *Lam encyc.* 1. 85. n. 3. *Regnault. Bot.*

A. *sinuata*. Thunb. *Diff.* 6. n. 5; (*excluso Dillenio.*) Willd. *Sp. Pl.* 2. 187; (*exclusis Syn. Horti Kewensis et Dilleni.*)

A. *perfoliata*. δ ; succotrina. *Hort. Kew.* 1. 466. *Woodv. Med. Bot.* 3. 556. tab. 202. *Bot. Mag. supra No. 472.*

A. *perfoliata*. ξ . *Linn. Sp. Pl. ed. 2. 1. 458.*

A. *vera*. *Mill. Dict. ed. 8. n. 15.*

A. *vera* minor. *Munting. Aloid.* 20. ic. *sine fl.*

A. *succotrina angustifolia spinosa flore purpureo. Comm. Hort. Amst* 1. 91. tab. 48.

A. *americana ananifolia floribus fuave rubentibus. Pluk. Phyt. tab.* 240. fig. 4.

(β .) major. G.

ALOE *purpurascens*. Haw. in *Linn. Transf.* 7. 20. n. 42. *Hort. Kew. ed. 2. 2. 292.*

A. *perfoliata*.

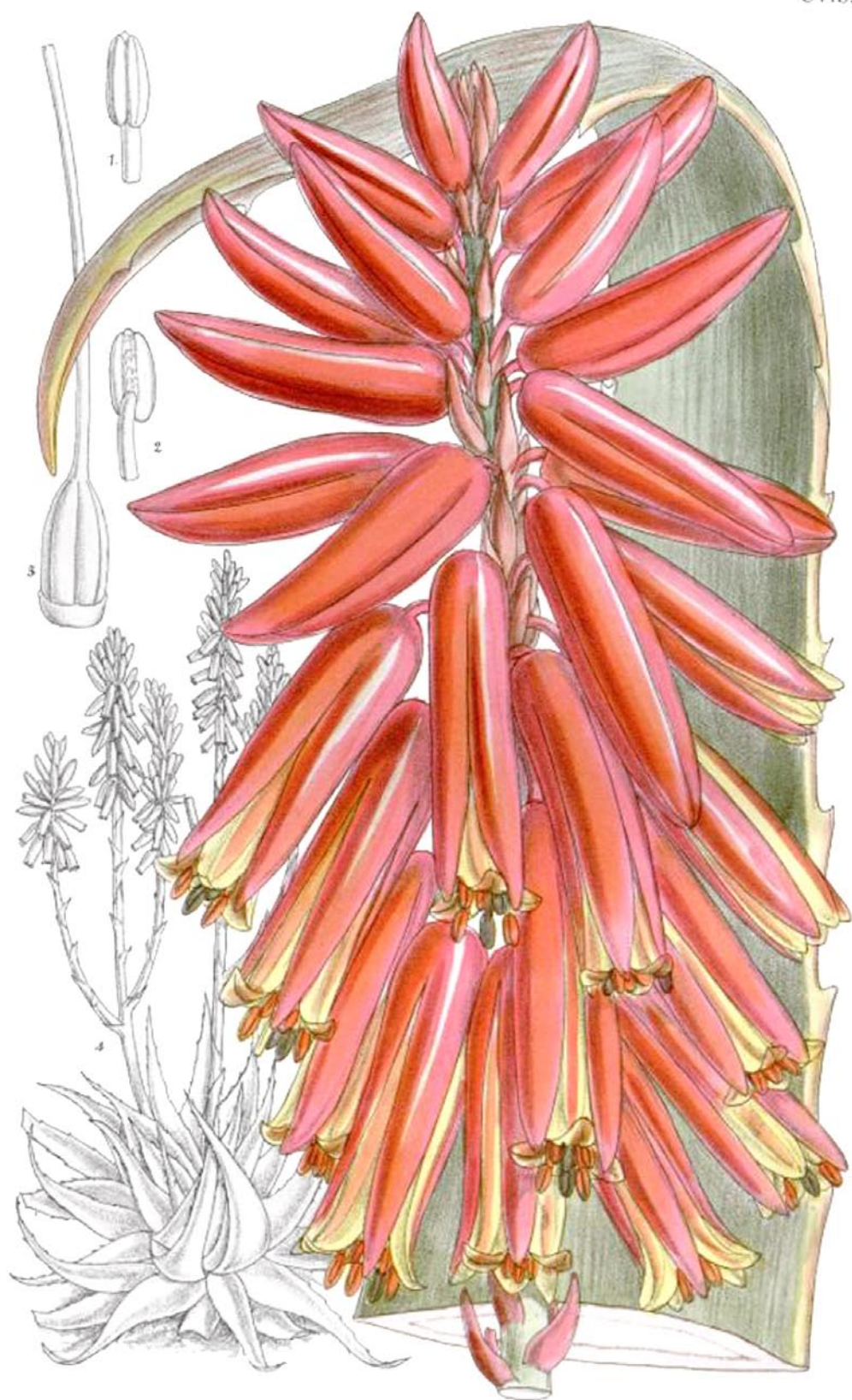
A. perfoliata. ε; purpurascens; foliis purpurascens, subtus inferne maculatis maculis parvis subrotundis. *Hort. Kew.* 1. 466.

This species is said to be that from which the medicine of the same name is obtained; but THUNBERG remarks that a still superior sort is had from *A. spicata*, a plant, we believe, to this time unknown in our collections. The stem of *succotrina* grows in our greenhouses to nearly the height of six feet, acquiring the thickness of a man's arm; the leaves are sometimes spotted with white on the outside towards their base; seldom exceed a foot in length and 1—2 inches in breadth near the base; when the plant is in flower, the inner ones generally converge, bending inwards; their colourless juice, when exposed to the air and suffered to dry, becomes of a bright violet-purple colour, a colour indeed they themselves usually assume before they are quite decayed. Native of the Cape of Good Hope, although the name bespeaks it as belonging to the Island of Socotora; whence the *Aloe* for medical purposes is said to have been formerly imported; but it does not seem ascertained from which species it was extracted.

Our drawing was made from a specimen that flowered in March last (at the same time with α.) in Mr. HAWORTH's greenhouse. By that gentleman, β. is considered as a distinct species from α; and in this view of it he is followed in the second edition of the *Hortus Kewensis*. As we could discover no difference between them beyond that of size, we have recorded them for mere varieties of each other. The flower-stem seldom exceeds two feet in length; the foliage is of darkish dull green, clouded over with a grey bloom or hoar; the corolla is of a dark brick-red colour, green at the top; about an inch and a half in length: β was known in our gardens before 1789, possibly produced in them from α. *G.*

NOTE.

No. 472; for "ALOE PERFOLIATA, *var.* SUCCOTRINA read "ALOE SOCCOTRINA. α."; inserting at the same time the synonymy as given in the present article. *G.*



M.S. del. J.N. Fitch lith.

Vincent Brooks, Jany & Son, Ltd. imp.

L. Reeve & Co. London.

TAB. 8448.

ALOE STEUDNERI.

Eritrea and Abyssinia.

LILIACEÆ. Tribe ALOINEÆ.

ALOE, *Linn.*; *Benth. et Hook. f. Gen. Plant.* vol. iii . p. 476.

Aloe Steudneri, *Schweinf. in Bull. Herb. Bois.* vol. ii. App. ii. p. 73; *Baker in Dyer Fl. Trop. Afr.* vol. vii. p. 458; *Berger in Engler, Pflanzenr. Liliaceae-Aloineae*, p. 287; affinis *A. Schölli*er, Schweinf, sed foliis magi attenuatis marginibus cartilagineis angustioribus pedicellis multo longioribus et perianthii segmentis basi tattum connatis differt.

Herba succulenta, acaulis vel subcaulescens, dichotome divisa. Folia circiter 25, dense rosulata, erecto-patentia vel subineurva, carnosa, 5·5–6 dm. longa, basi 12–15 cm. lata, gradatim attenuata, apice acuta, margine anguste cartilaginea, dentata, pallidissime roseo-tincta dentibus parvis, deltoideis, 1–2 mm. longis, 1–4 cm. inter se sejunctis, supra plana vel leviter convexa sed prope apicem concavo-canaliculata, subtus versus marginem singulum crassiora ideoque oblique convexa, vix carinata. *Inflorescentiae* saepe 2 ex eadem rosula, pedunculis simplicibus vel superne ramosis erectis glaucis sursum purpureo-tinctis 8–9 dm. altis, ramis racemosi 15–25 cm. longis; bracteae erectae, imae pedunculo ramove adpressae, eae flores subtendentes convolutae, pedicellos amplectentes, 1·5–2 cm. longae, ovato-lanceolatae, acuminatae, carinatae, nervis striatae, rubrae; pedicelli 1·8–2 cm. longi, rubri, apice recurvi. *Perianthum* 4·7–5·3 cm. longum, 1·4 cm. latum, trigono-cylindricum, deflexum et prope apicem minopere recurvum, ad basin fere 6-partitum; segmenta lineari-oblonga, obtusa, exteriora 3 recta, intense rubra, interiora 3 apice recurva, inferne rosea, apice fusco-lutea, rubro-costata. *Stamina* inclusa vel subinclusa, filamentis pallide luteis, antheris brunneis, polline salmoneo-carneo. *Stylus* demum exsertus, pallide luteus.

The handsome Aloe here figured, which was first described by Dr. Schweinfurth in 1894, is a species for whose introduction European horticulture is indebted to Professor Penzig of Genoa. Schweinfurth's account of the plant was based on Abyssinian specimens gathered by Dr. Steudner in the Ghaba Valley at about 11500 feet above sea-level in 1862, and on some inflorescences collected by Penzig on Mt. Sabr in Eritrea at an altitude of 8500 feet in 1891, along with the living plants whereof that whence our material has been obtained forms one. That *A. Steudneri* is a species as distinct as it is striking has never been in doubt; its precise position and its exact relationship to other species have, however, been somewhat obscure. This

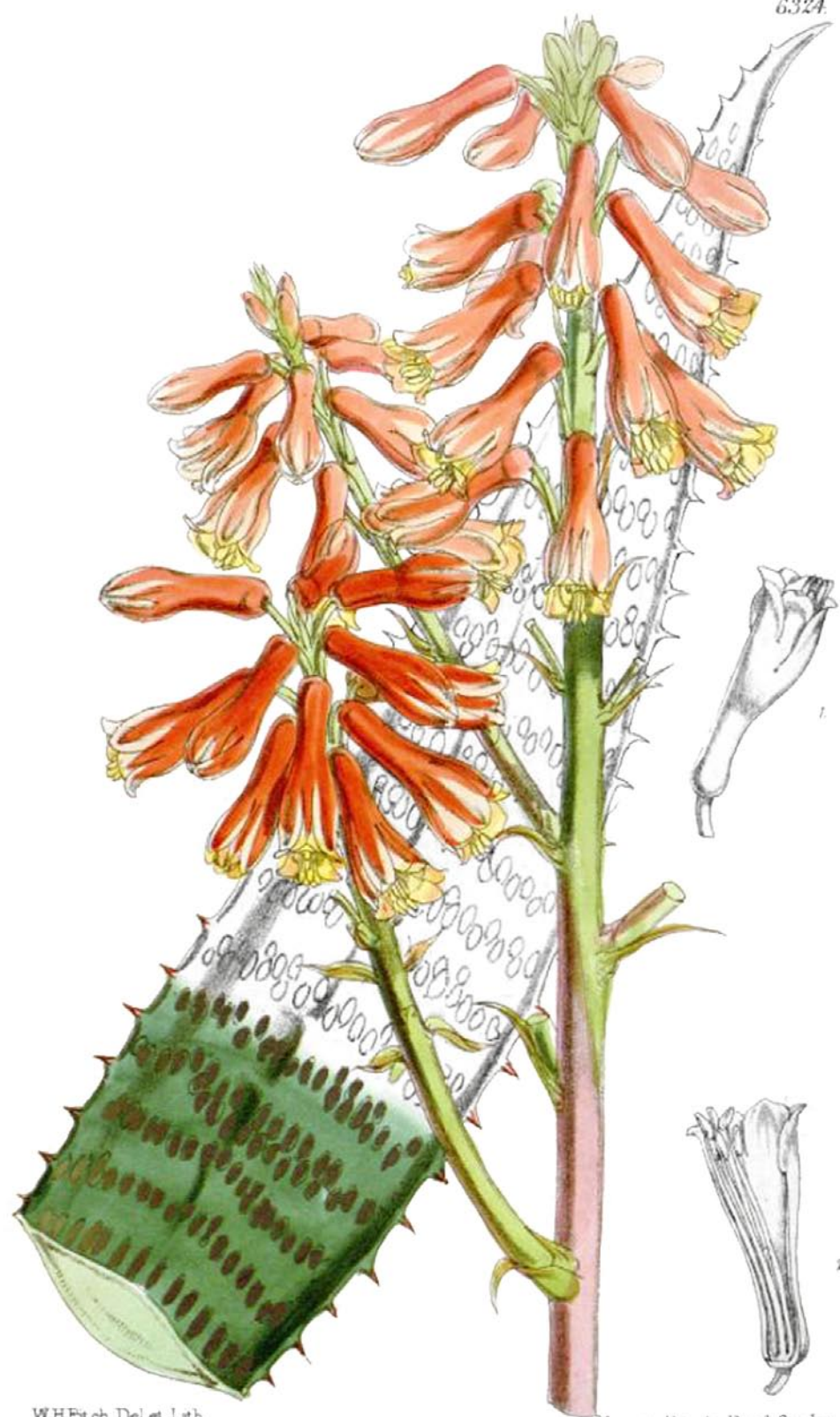
AUGUST, 1912.

obscurity has had its origin in the somewhat fragmentary character of the original material, and has been increased by the capricious disposition of the species in the matter of flowering. There is a healthy plant in the succulent collection at Kew, kindly presented by Professor Penzig in 1896. But this plant, though it thrives well under the conditions suitable for other Aloes, has not so far flowered. On the other hand a plant sent by Professor Penzig to the Cambridge Botanic Garden flowered there as early as March 1901. The material for our figure has, however, been derived from yet another plant which flowered for the first time in the garden of Lady Hanbury at La Mortola in April 1911, During the journey in the course of which Penzig rediscovered Steudner's Aloe, he collected young plants of an Aloe which, he believed might be *A. Schimperii*, Schweinf.; one of these plants was given by him to the late Sir Thomas Hanbury in 1901. When this plant did at length flower it proved to be in reality *A. Steudneri*; the figure here given has been prepared from its flowers and from a photograph communicated, along with a full description, by Mr. A. Berger. In the account here given full use has been made of that description, and of one by Mr. Brown, who, ten years earlier, had occasion to deal with the Cambridge plant. It may be noted, however, that while these two very competent authorities are satisfied that the plant is *A. Steudneri* there is still some obscurity as to its position in the genus. Dealing with this point in the 'Pflanzenreich,' Mr. Berger places the species provisionally at the end of the section *Purpurascences* with *A. purpurascens*, Haw., and *A. succotrina*, Lamk. The study of the living plant has led Mr. Berger to suggest that its affinities are rather with *A. percrassa*, Tod., and *A. rubro-lutea*, Schinz, and has induced Mr. Brown to suggest a close relationship with *A. Schöllerii*, Schweinf. However this may be, the plant, in spite of the shyness with which it flowers, is a striking one and well worthy of a place in succulent collections.

DESCRIPTION.—*Herb*; succulent, nearly stemless, branching at the base. *Leaves* about 25, in a dense rosette a yard across, erect and somewhat spreading or incurved near the point, about 2 ft. long, 5–6 in. wide at the base, gradually

narrowed to the acute point, with a narrow hyaline somewhat rose-coloured toothed margin, the teeth 1 lin. long or less and separated by intervals of from $\frac{1}{4}$ – $1\frac{1}{2}$ in., upper surface flat or slightly convex, but towards the point concave and channelled, under surface obliquely convex owing to one side of the leaf being rather thicker than the other, hardly keeled. *Inflorescences* usually 2 from the same crown; peduncles erect, simple or sparingly branched, nearly 3 ft. high, glaucous with a purple tinge upwards; the branches racemose, 6–10 in. long; bracts erect, those below empty, adpressed to their stem or branch, the flowering ones convolute, embracing the pedicels, $\frac{1}{2}$ – $\frac{3}{4}$ in. long, ovate-lanceolate, acuminate, keeled, striate, red; pedicels $\frac{2}{3}$ – $\frac{3}{4}$ in. long, red, recurved at the tip. *Perianth* about 2 in. long, over $\frac{1}{2}$ in. wide, slightly trigonous, deflexed and then slightly upturned near the top, 6-partite nearly to the base; segments linear-oblong, obtuse, the 3 outer straight, deep red, the 3 inner recurved at the tip, rose-pink below, dark yellow at the tip, with red veins. *Stamens* included or nearly so; filaments pale yellow; anthers brown; pollen salmon-coloured. *Style* at length exserted, pale yellow.

Figs. 1 and 2, anthers; 3, ovary and style; 4, an entire plant, from a photograph:—*all enlarged except 4, which is much reduced.*



TAB. 6324.

ALOE TRICOLOR.

Native of the Cape of Good Hope.

Nat. Ord. LILIACEÆ—Tribe ALOINEÆ.

Genus ALOE, Linn. (*Kunth, Enum.* vol. iv. p. 492).

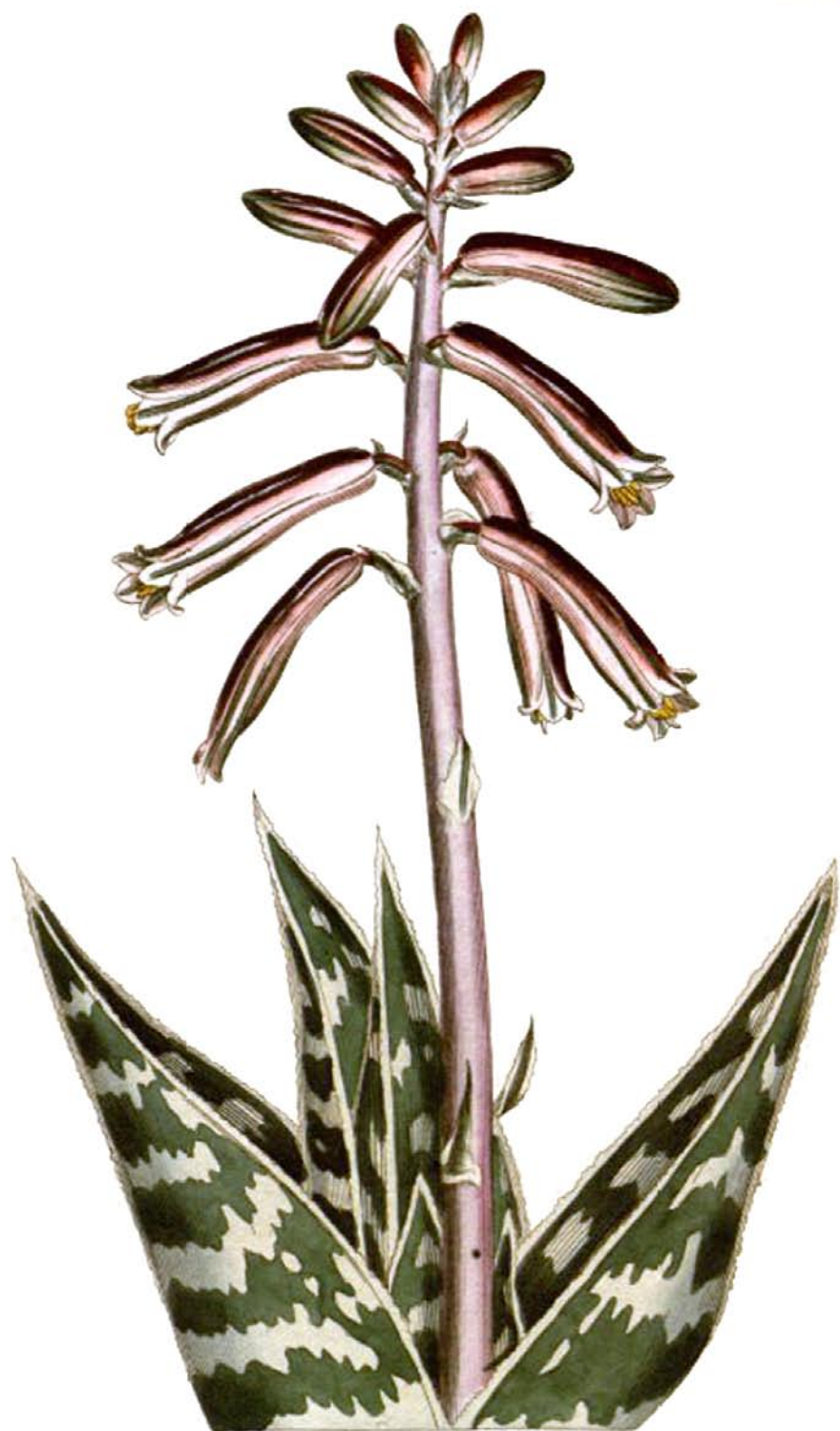
ALOE *tricolor*; breviter caulescens, foliis 12–15 dense rosulatis lanceolatis semipedalibus e basi ad apicem attenuatis sordide viridibus maculis copiosis parvis albidis irregulariter seriatis decoratis margine dentibus parvis deltoideis cuspidatis patulis apice castaneis corneis armatis, scapo sesquipedali, paniculis deltoideis parce ramosis ramis brevibus densifloris racemosis, pedicellis 3–4 lin. longis, bracteis lanceolatis acuminatis pedicello sequilongis, perianthii splendide corallino-rubri tubo cylindrico medio constricto, segmentis oblongis introrsum luteis tubo duplo brevioribus, genitalibus inclusis.

This is a fine new dwarf Aloe of the Pictæ group. It differs from *A. obscura*, Miller, and from the well-known *A. Saponaria*, Haworth, with its many subspecies and varieties, by its typically racemose, not capitate inflorescence and by its perianth strongly constricted in the middle. In both these points it agrees with *A. macrocarpa*, a species lately described and figured by Todaro, (*Hort. Bot. Panorm.* tab. 9) sent by Schimper from Abyssinia, from which our present plant differs in the shape and maculation of its leaves. Perhaps it may be, as Mr. N. E. Brown has suggested, the *A. arabica* of which the foliage alone is described by Salmdyck (see *Kunth, Enum.* vol. iv. p. 525). But it is clearly not the plant originally named *arabica* by Lamarck, which is founded on the Arabian *A. variegata* of Forskahl. Our present plant flowered for the first time in the Kew collection this spring. We received it from the Oxford Botanic Garden, and on applying to Professor Lawson he tells me that they got it some time ago, labelled as a Cape species, from Mr. Justus Corderoy, of Blewbury.

DESCR. *Stem* very short, simple. *Leaves* twelve to fifteen,
OCTOBER 1ST, 1877.

in a dense rosette, lanceolate, half a foot long, one and a half or two inches broad at the base, narrowed gradually to an acute point, half an inch thick in the middle, rounded on the back, slightly turgid in the upper half of the face, dead green, marked on both faces with copious irregular transverse bands of small crowded oblong or roundish whitish spots, the edge armed with crowded deltoid cuspidate spreading or deflected prickles, a sixteenth or a twelfth of an inch long, which have a horny brown tip, the leaves bordered before they fade with purplish-brown, and at the flowering time all more or less recurved. *Scape* a foot and a half long, purplish, glaucous. *Panicle* deltoid, six or eight inches long, with an end raceme three or four inches long and two or three short erecto-patent branches; pedicels three or four lines long; bracts lanceolate, about as long as the pedicels. *Perianth* an inch long, bright coral-red on the outside; tube twice as long as the segments, constricted at the middle; segments oblong, yellow inside. *Stamens* falling slightly short of the tip of the perianth-segments; oblong anthers a sixteenth of an inch long.—*J. G. Baker.*

Fig. 1, A single flower; 2, perianth, cut open—*both magnified.*



ALOE VARIEGATA. PARTRIDGE-BREAST
ALOE.

Class and Order.

HEXANDRIA MONOGYNIA.

Generic Character.

Cor. erecta, ore patulo, fundo nectarifero. *Filam.* receptaculo inferta.

Specific Character and Synonyms.

ALOE variegata subcaulis, foliis trifariis pictis canaliculatis: angulis cartilagineis, floribus racemosis cylindricis. *Thunb. Aloe, n. 12. Ait. Kew. v. 1. p. 470.*

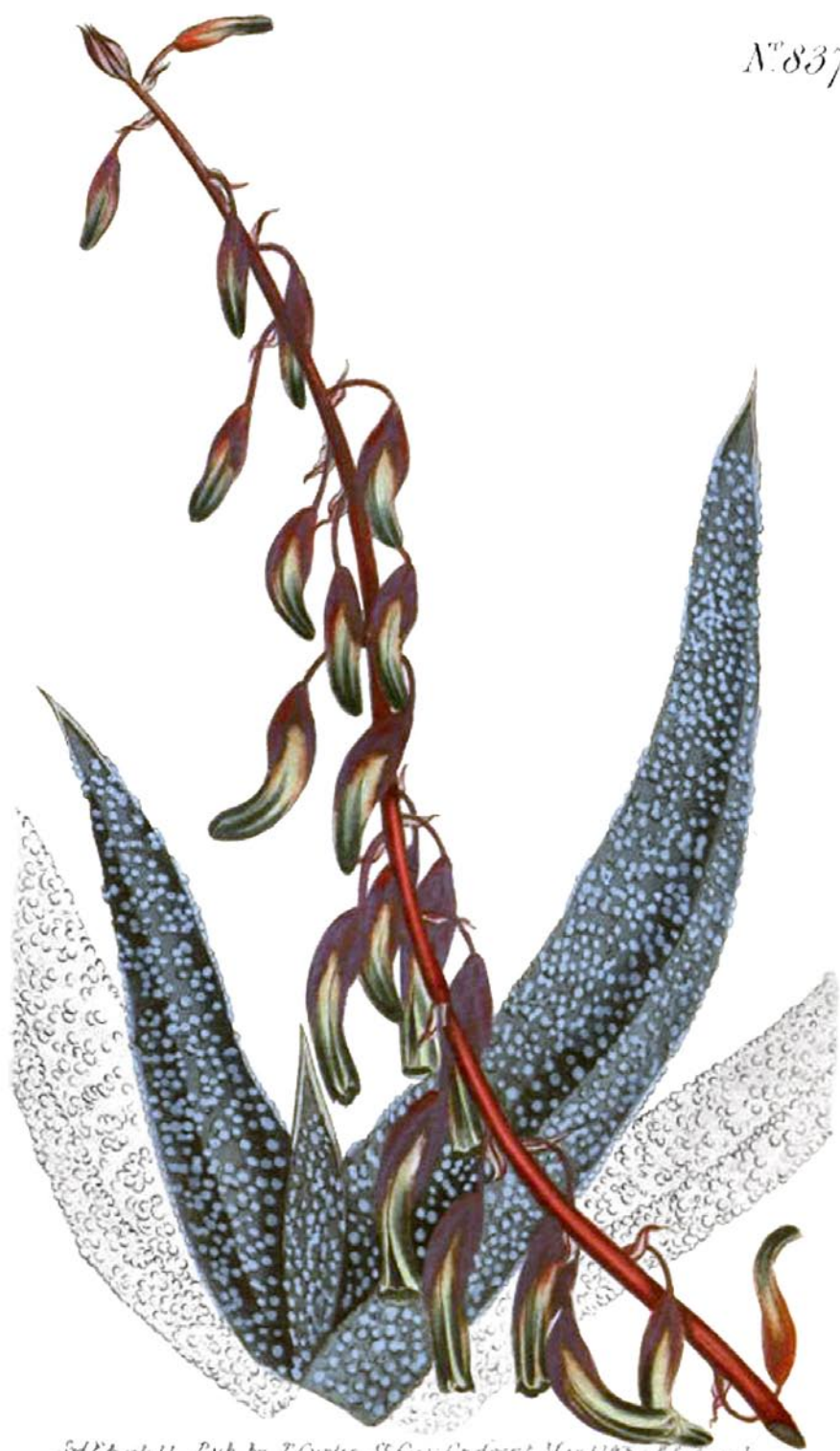
ALOE variegata floribus pedunculatis cernuis racemosis prismaticis: ore patulo æquali. *Linn. Sp. Pl. ed. 3. p. 459.*

ALOE africana humilis, foliis ex albo viridi variegatis. *Comm. præl. 79. t. 28. var. 27. t. 27.*

So many desirable points unite in this Aloe, that we are not to wonder at its being held in such very high esteem by all that have the least taste for plants, especially those of the succulent kind; we frequently see it nursed up with great care by those who have only the convenience of a parlour window, and succeed better with such than in the greenhouses of many: it grows readily and blows freely but irregularly, during most of the summer months; its foliage is beautiful both in its form and markings, and its flowers are no less handsome; it rarely exceeds a foot or a foot and a half in height, when in flower; is increased by offsets, and requires the same treatment as the Aloe tribe in general.

Is a native of the Cape, and was cultivated here by Mr. FAIRCHILD in 1720, *Blair's Bot. Eff.*

MILLER informs us, that he raised a variety of it from Cape seeds with broader and more spreading leaves and a taller flowering stem.



ALOE VERRUCOSA. WARTED ALOE.

Class and Order.

HEXANDRIA MONOGYNIA.

Generic Character.—*Vid. Num.* 765.

Specific Character and Synonyms.

ALOE *verrucosa* (*acaulis, curviflora*) foliis distichis lorato subeniformibus obtuse parumque acuminatis, undique atque subconfluentes papillofis; floribus mediis, reflexis; corolla subcoalita. G.

ALOE *verrucosa*. Thunb. 9. Prod. 61. Hort. Kew. 1. 468. Willd. Sp. Pl. 2. 189. Haworth on Aloe in Linn. Transf. 7. p. 12.

ALOE *carinata*, v. *ensiformis*. Decand, Pl. Gr. 63.

ALOE *disticha*. β. Sp. Pl. 459.

A Cape species, now very common in our greenhouses; having been cultivated by MILLER so long ago as 1731.

Our drawing was taken at Mr. MALCOLM's Nursery, Kenfington.

One of the humbler sorts, having leaves about 6—7 inches in length, and far shorter than the flower-stem.

ERRATA.

No. 827, l. 7. for "*sessiflora*" read a "*sessiflorum*".

Ib. l. penult, for "*nether*" read "*mother*."

Ib. p. 2. l. 2. for "*of*" read "*or*."

No. 828, l. 13, after "ALOE" add "*humilis*."



Edw^d Edwards del.

Hubby S. Curtis Walworth Feb 11/61.

F. Parfome. Sc.

ALOE VIRENS. APPLE-GREEN-LEAVED
ALOE.

Class and Order.

HEXANDRIA MONOGYNIA.

Generic Character.—*Vid. No. 1352.*

Specific Character and Synonyms.

ALOE *virens*; (*subcaudescens*; *flores e majoribus, cylindrici, recti, cernui*;) caudice subnullo vel brevi; foliis fasciculatim ambientibus, recurvato divaricantibus, ligulato-attenuatis, plano-convexis, ab acie curvatis, tenerioribus, a prona parte albo rariter a supina parvissime ac prominule guttatis, ad oram molliter distanter ac directe spinosis; racemo distanti, diffuse spicato; pedicellis ascendentibus, corolla bis brevioribus bractea duplo longioribus; corolla pendula, clavato-tubulosa, rotundate trigona, ab ima angustiore ventricoso-dilatata, conniventer patula, laciniis ad medium fere usque conferventibus; stylo exserto. G.

ALOE *virens*. Haworth. Linn. Transf. 7. 17. n. 34.

Native of the Cape of Good Hope. Nearly allied to *humilis*. The *caudex* is sometimes scarcely above the level of the ground, at others half a foot high, throws out abundance of suckers, so as to become bushy; *leaves* of a bright apple-green colour; about an inch broad at their base; *flowers* of a yellowish red tint, about an inch and half long. Blooms in the autumn. Of easy culture.

We never saw this plant in any other collection than that of Mr. HAWORTH, where our drawing was taken. Most probably introduced since the publication of the Hortus Kewensis. We can find no traces of it in any book known to us. Can hardly have been confounded with the varieties of *humilis*? G.



Sid. Thomas. Pub. by T. Currier. W. Geo. Colver. Feb. 1859. P. 100. 1/2

ALOE VISCOSA. TRIANGULAR ALOE.

Class and Order.

HEXANDRIA MONOGYNIA.

Generic Character.—Vid. No. 765.

Specific Character and Synonyms.

ALOE *viscosa* (*parviflora; caulescens*) foliis omnibus caulinis, brevibus, lanceolato-ovatis, canaliculatis, glabris, trifariam subverticillatis, congesto-imbricatis; scapo filiformi, simplici; racemo distante, corolla cylindrica, bilabiato-patula, fere tota coadunata; stigmate obtuso. *G.*

ALOE *viscosa*. *Linn. Sp.* 460. *Mill. Dict.* 11. *Thunb. Diff* 13. *Prod.* 61. *Hort. Kew.* 1. 470. *Kniph. Cent.* 4. n. 4. *Knorr Del.* 1. t. A. 10. *Willd. Sp. Pl.* 2. 191. *Decand. Pl. Gr.* 16. t. 16. *Haworthb Tr. Linn. Soc.* 7. p. 6.

ALOE foliis canaliculatis trifariam imbricatis caylinis apice reflexo-patulis. *Hort. Cliff.* 132. *Upf.* 87. *Roy. Lugdb.* 23.

ALOE africana erecta triangularis et triangulari folio. *Comm. Præl.* 82. t. 31. *Dill. Elth.* 15. t. 13. f. 13. *Till. Pif.* 7. *Boerb. Ind. Alt. p.* 131. n. 32.

ALOE triangularis. *Medik. Bot. Beob.* 61.

ALOE triangulaire. *Lam. Dict.* n. 18.

A Cape species, introduced into our gardens by Dr. JAMES SHERARD, about 1733, where it flowers in June and July; easily propagated by offsets; has so very singular an appearance that it may be distinguished at first sight from all its congeners known to us.

The

The caudex is completely covered by the leaves and is generally from four to eight inches in height; lower leaves imbricately upright, upper imbricately piled and nearly horizontal. Flowers slender, distant, sparse, not showy. Pedicels short. Segments of the corolla concrete to where they are bilabiate, reflected. Stamens unequal, enclosed. Style shorter than these, filiform. Stigma simple.

Viscosa is not a very eligible appellation, as referring only to the liquid contained in the tube of the corolla, a circumstance not peculiar to this species. *G.*



ANACAMPSEROS ARACHNOIDES. WHITE-
FLOWERED ANACAMPSEROS.

Class and Order.

POLYANDRIA MONOGYNIA.

Generic Character.—*Vid. No. 1367.*

Specific Character and Synonyms.

ANACAMPSEROS *arachnoides*; foliis ovatis acuminatis subtus gibbis supra planiusculis araneosis, stipulis filamentosis folio brevioribus, pedunculis elongatis.

PORTULACA *arachnoides*; foliis ovatis acuminatis difformibus viridibus lucidis arachnoideis, racemo simplici, pedunculis teretibus elongatis. *Haworth Misc., Nat. p. 142.*

This species has the nearest affinity with PORTULACA *Anacampseros* LINN. but is a much smaller plant; the leaves, especially about the lower part, are covered with a kind of web, and the woolly stipules, common to the whole genus, are mixed with longer and more robust threads than in that, though shorter and finer than those of *A. filamentosa*, in which they resemble in degree fine shavings of horn, and are more than twice the length of the leaves. The flowers are white with a delicate tinge of purple. Mr. HAWORTH observes too that the seeds are much less winged than those of *P. Anacampseros*.

This author enumerates five species under the same section, all of which will be included under the genus ANACAMPSE-ROS; but as we have not yet had an opportunity of examining the whole, we shall not undertake to determine whether they may all be sufficiently distinct, but of the two species here figured we think there can be no doubt.

Flowers at the same time and requires the same treatment as the preceding species.



ANACAMPSEROS FILAMENTOSA. THREADY
ANACAMPSEROS.

Class and Order.

POLYANDRIA MONOGYNIA.

Generic Character.

Cal. 2 -phyllus. *Cor.* 5-petala, fugacissima. *Capf.* conica, 1-locularis 3, feu 6-valvis. *Sem.* alata.

OBS. *Suffrutices succulentæ, foliis carnosis gibbis, stipulis lanatis, bracteis laceris.*

Specific Character and Synonyms.

ANACAMPSEROS *filamentosa*; foliis globofo-ovatis utrinque gibbis araneosis, stipulis ramentaceis folio longioribus.

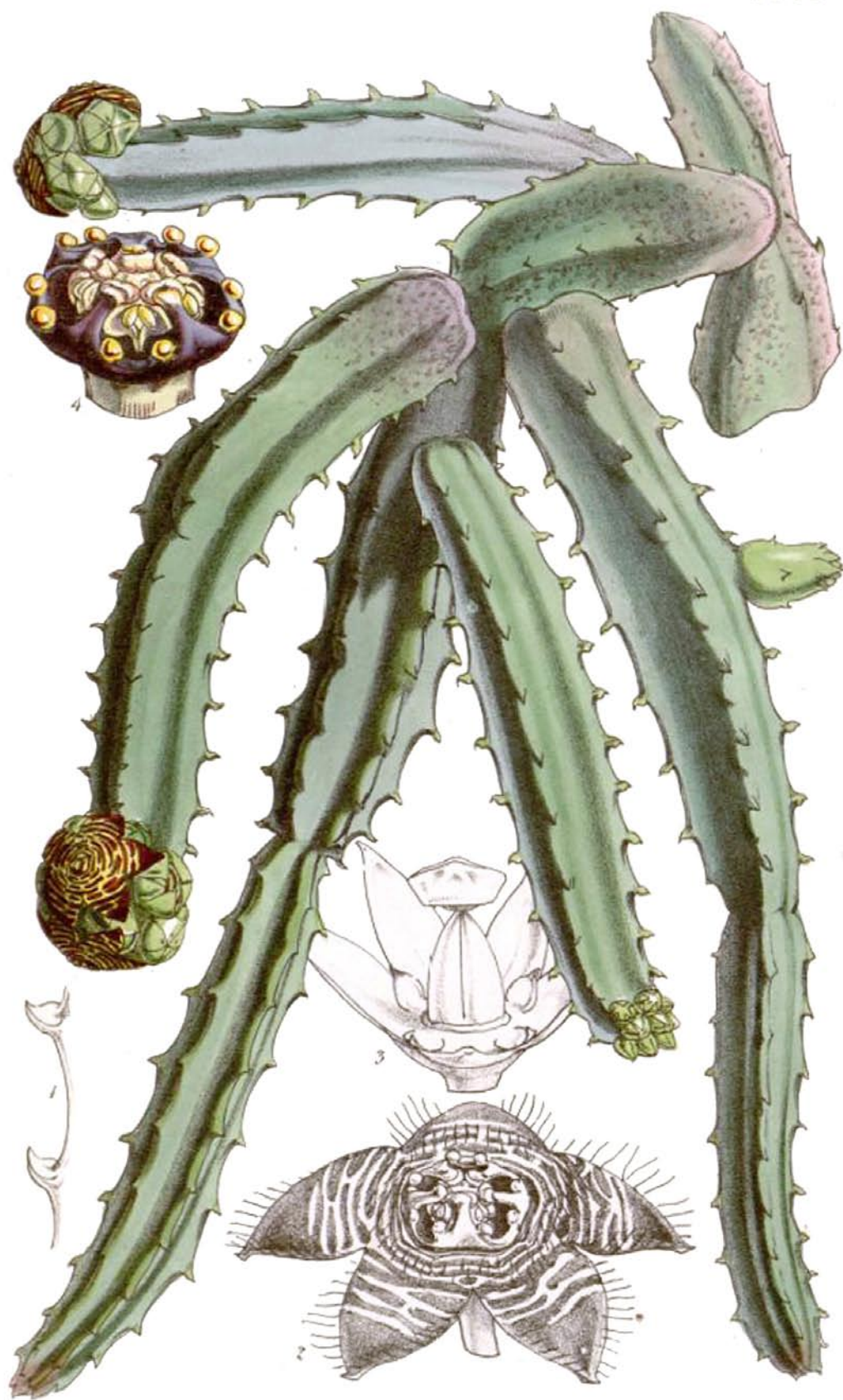
PORTULACA *filamentosa*; foliis imbricatis expansis atroviridibus arachnoideis, superne rugosis; filamentis axillaribus folio longioribus. *Haworth Miscel. Nat. p.* 142.

PORTULACA *stipularis*; foliis ovatis utrinque gibbis obtusis lana indutis, stipulis ramentaceis, pedunculo paucifloro. *Dryand. MSS. apud Banks.*

MR. HAWORTH, by whom we were favoured with the plants from which the present and the following article were drawn, has given the most complete account of the genus PORTULACA, as constituted by LINNÆUS, that we have seen any where. It is from one of his sections that we have, agreeably to his suggestion, framed the genus ANACAMPSEROS, a name by which LINNÆUS originally distinguished one of the species, though he afterwards united it with Portulaca. This he probably would not have done had he known that there were several other closely

closely allied species, all natives of the southern promontory of Africa. LOEFLING has likewise insisted upon the propriety of keeping *Anacampseros* distinct from *Portulaca*; but he probably had in view the American flat-leaved species, which, as suggested by HAWORTH, we would retain under ADANSON's genus *TALINUM*, adopted by JUSSIEU and WILLDENOW. The Cape species appear to us to be as distinct from these as *Talinum* is from *Portulaca*. According to Mr. HAWORTH, all the species of *Anacampseros* have a slender conical seed-vessel of five or six valves, which would afford a sufficient distinction from the three-valved species of *Talinum*; but the capsule of the very species on which we are now treating, is described by DRYANDER as three-valved; as is that of *P. Anacampseros* LINN. by other authors. Probably the valves in decaying may split in the middle, a circumstance not very unusual, and which may have imposed upon Mr. HAWORTH. We hope hereafter to take an opportunity of examining the fructification of this genus more carefully.

This plant was found by the late Mr. MASSON at Carro, beyond Hartequas Kloof. Flowers in August and September. Requires the same treatment as the Cape species of *Aloe* and *Mesembryanthemum*.



APTERANTHES GUSSONIANA.

Gussoni's Apteranthes.

Nat. Ord. ASCLEPIADEÆ.—PENTANDRIA DIGYNIA.

Gen. Char. Calyx quinquepartitus. *Corolla* rotata, quinquefida; *laciniis* late ovatis, apice pilosis. *Gynostegium* faucem subæquans. *Corona* staminea simplex, quinqueloba; *lobis* subtriangularibus, obtusis, stigmatibus incumbens, carnosulis, basi et a latere globulis obtusis flavis stipatis. *Antheræ* apice simplices; *massæ pollinis* rotundate, margine hinc pellucidæ. *Stigma* muticum. *Folliculi* . . — *Herbæ* *Stapeliæ* habitu, in regione *Mediterranæa occidentali*, ramis *tetragonis dentatis*, floribus *umbellatis parvis rufo-fuscis transverse rugosis*, ad faucem pilis raris inspersis inodoris. *De Cand.*

APTERANTHES *Gussoniana*.

APTERANTHES *Gussoniana*. *Mikan, Act. Acad. Nat. Cur.* v. 17. p. 594. t. 41.

“*Gussoni, Notiz.* 1832, n. 87, cum ic.” *De Cand. Prodr.* v. 8. p. 649.

Cosson et Dur. Fl. Alger. t. 62. f. 1 (sine descript.).

STAPELIA *Gussoniana*. *Jacq. in Bot. Reg.* t. 1731.

STAPELIA *Europæa*. *Guss. Act. Soc. Borb.* v. 4. p. 81, et *Suppl.* p. 65. *Flor. Siculæ*, v. 1. p. 288.

BIRCHEROSIA *Munbyana*, “*Decaisne in litt.*” (ad cl. *Munby*), *Menby, Fl. d’Alger*, p. 25.

Formerly, Asclepiadeous plants, with the habit of the well-known genus *Stapelia*, were supposed to be peculiar to the deserts of southern Africa; but we have now, of this group, the genus *Caralluma*, of which two species are peculiar to the East Indies, one to Arabia; *Boucerosia*, whose nine species are found in the East Indies, Arabia, Senegambia; and *Apteranthes*, the plant now under consideration, the most interesting of all in a geographical point of view, inasmuch as it is the only representative of the group which extends to Europe. It was first, before 1832, detected by Professor Gussoni, on the Sicilian island of Lampedusa; has since been found about Oran, in Algeria, by an English botanist resident there, Mr. Munby; and more recently in saline places at Cape Gata, and at Almeria, in Spain, by Mr. Webb. A solitary species only is known of the genus,

DECEMBER, 1ST, 1858.

for "*Apteranthes Numidica*, Durieu, Explor. Alger. t. 62," of Pritzels's valuable 'Iconum Botanicarum Index locupletissimus,' should have been *Campanula Numidica*, which is the name written and the plant referred to on the plate quoted. Our greenhouse owes the possession of this rarity to Mr. Munby, I believe its discoverer in North Africa, unless the *Stapelia hirsuta* of Desfontaines, Fl. Atlantica, vol. i. p. 213;—surely it cannot be the South African *St. hirsuta*, Linn., although Desfontaines considered it as such. It flowers with us in September.

DESCR. The entire aspect of the plant is that of a small-flowered *Stapelia*; the *stems* and more or less pendent branches are quite leafless, about as thick as one's finger, with from four to six angles, more or less deeply channelled between the angles, and these dentate, at intervals of nearly half an inch from each other, with short, sharp, triangular *teeth*, which are convex below, plane above. *Flowers* small, in *umbels* springing from the apex of a branch, or from a little below the apex, five to seven or eight in an umbel. *Pedicels* very short. *Calyx* quinquepartite; segments lanceolate, acute, spreading; within, at each sinus, are five small ovato-acute scales, only seen on removing the corolla. *Corolla* scarcely three-quarters of an inch broad, rotate, fleshy, pale-yellow, mottled and banded with dingy-purple, the five ovate segments soon recurved, villous at the faux and at the margins. *Gynostegium* sunk in the short tube of the corolla, five-lobed at the margin; the lobes dark-purple, triangular, its apex two-lobed, yellow: and there are two bright-yellow globose *glands* at the base. These lobes are close-pressed upon the stigma. *Anthers* simple at the apex. *Stigma* a depressed, obscurely five-angled, large, peltate disc.

Fig. 1. Teeth, from the angles of the stem. 2. Flower. 3. Portion of calyx and pistil. 4. Gynostegium:—*magnified*.



ASCLEPIAS CARNOSA. THICK-LEAVED
ASCLEPIAS.

Class and Order.

PENTANDRIA DIGYNIA.

Generic Character.

Contorta. *Nectaria* 5, ovata, concava, corniculum exferentia.

Specific Character and Synonyms.

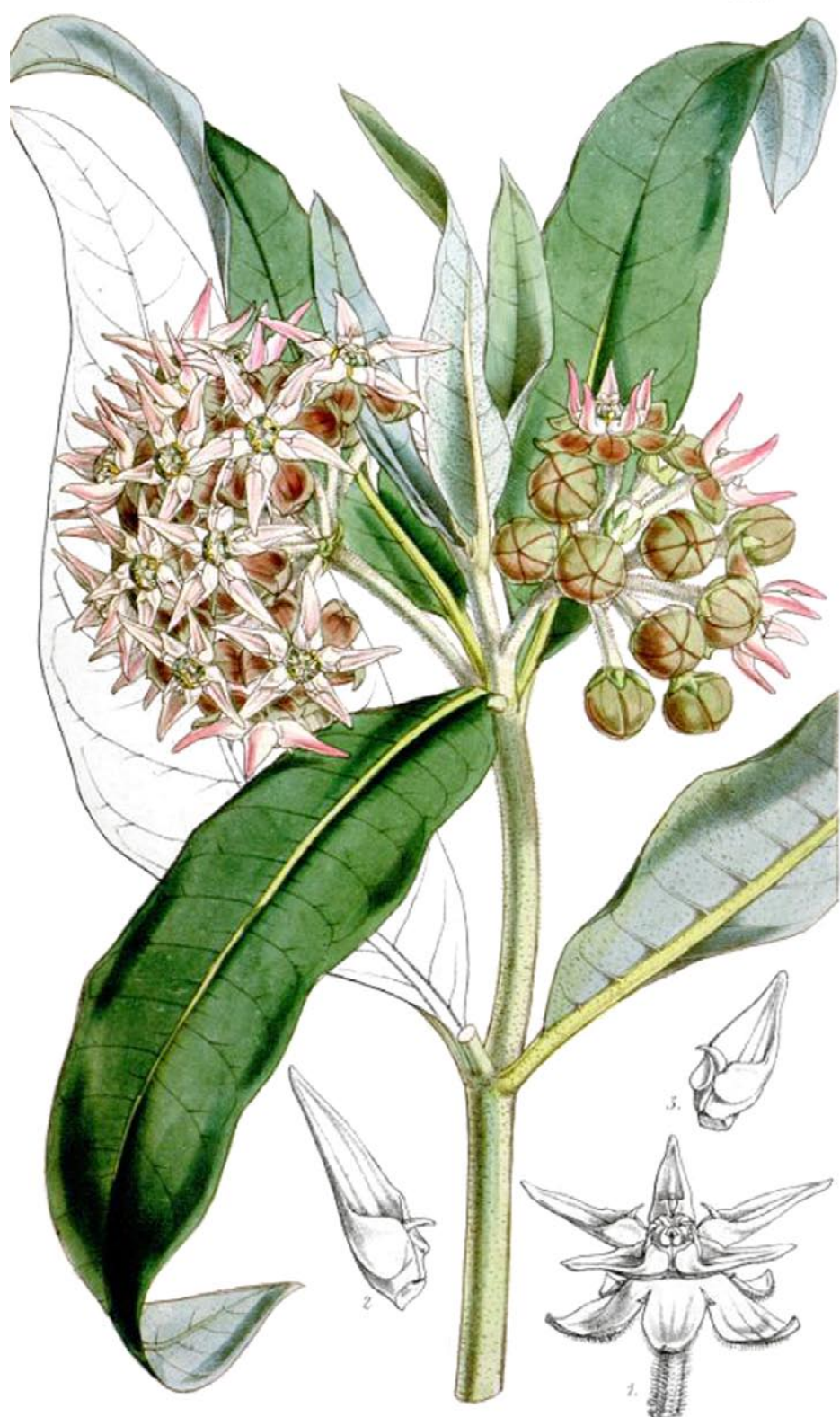
ASCLEPIAS *carnosa*; caule fruticoso quadrangulari volubili, umbellis simplicibus nutantibus, foliis oppositis ovatis margine revolutis carnofis glabris.

ASCLEPIAS *carnosa*. Linn. *Suppl.* 170. Willd. *Sp. Pl.* 1. 1264.

For a specimen of this very rare plant, a native of China, we are indebted to the honourable Mrs. BARRINGTON, in whose collection at Mongewell, in Berkshire, it flowered in July last. LINNÆUS had seen only a small dried specimen, which had been fraudulently given by the Chinese as the plants producing the Gamboge. Had he examined it in a living state it is probable he would not have referred it to the genus *Asclepias*, as it wants the hollow horned nectaries, and is very different in habit from the other species. Perhaps it may form a new genus including *STAPELIA chinensis* and *cochinchinensis* of LOUREIRO;* but as we did not receive the plant from our draughtsman in a sufficiently perfect state to determine with certainty to what genus it really belongs, we have thought it best to continue the appellation given to it in the supplementum, and retained in WILLDENOW's edition of the *Species Plantarum*.

It has been hitherto treated as a stove plant.

* Whilst this account was in the Press, we have seen LOUREIRO's specimen of *STAPELIA cochinchinensis*, together with a drawing of the flower by our friend, Mr. CHARLES KÖNIG, which confirms our suspicion of the very near affinity of these plants. The habit, the leaves, and the form of the nectaria are exactly similar.



TAB. 4413.

ASCLEPIAS DOUGLASII.

Douglas' Asclepias.

Nat. Ord. ASCLEPIADEÆ.—PENTANDRIA DIGYNIA.

Gen. Char. Cal. alte 5-partitus, sepalis ovatis parvis patulis. *Corolla* alte 5-partita, laciniis præfloratione valvata, primo patulis dein refractis. *Corona staminea* summo gynostegio imposita, 5-phylla, foliolis cucullatis, cucullis ovatis v. superne dilatatis semper e fundo processum aversum corniformem stigmati incurvum emittentibus. *Antheræ* membrana terminatæ. *Massæ pollinis* compressæ, apice attenuato affixæ, pendulæ. *Stigma* depressum muticum. *Folliculi* pergamacei, læves v. ramentacei, v. spinis innocuis onusti. *Semina* comosa.—*Herbæ perennes*, Americanæ, præcipue Am. Sept.; folia opposita, verticillata, raro alterna; umbellæ interpetiolares. *Dcsne.*

ASCLEPIAS *Douglasii*; pubescenti-tomentosa, caule simplici, foliis oblongis ovato-oblongisve acutis subtus tomentosus, pedunculis brevibus pedicellisque tomentosus, umbellis multifloris, corollæ laciniis ovatis acutis extus tomentosus, coronæ foliolis ovatis acuminatis cornu longioribus inferne marginibus utrinque unidentatis.

ASCLEPIAS *Douglasii*. *Hook. Fl. Bor. Am. v. 2. p. 53. t. 142. De Cand. Prodr. v. 8. p. 564.*

One of the finest of the genus *Asclepias*: a native of the west side of the Rocky Mountains, where it was detected by Douglas, after whom it was named. Our plant is raised from seeds sent in 1846 from North-west America by Mr. Burke, then Collector for the Royal Gardens. It first flowered in the Nursery of Messrs. Lucombe, Pince, and Co., Exeter, in whose garden it made a fine appearance in the open border. It continues a long time in flower.

DESCR. An erect, herbaceous *plant*, a foot or a foot and a half high, with rather stout, rounded, generally unbranched, woolly *stems*. *Leaves* opposite or ternately whorled, a span long, varying from almost ovate, or ovato-lanceolate (more rarely subcordate) to oblong, acute, downy above, woolly beneath. *Peduncles* short, and as well as the pedicels woolly. *Umbel* many-flowered. Flowers crowded, reddish purple, tinged with green. *Calyx* rather small: *segments*

DECEMBER 1ST, 1848.

of the corolla large, ovate, acute, concave. *Coronal leaflets* very large, at first erect, then spreading, narrow, ovate, much acuminate, below dilated on each side into a blunt toothed *horn* short, incurved.

Fig. 1. Flower. 2 and 3. Coronal leaflets :--magnified



ASCLEPIAS VESTITA. HAIRY-STEMMED
ASCLEPIAS.

Class and Order.

PENTANDRIA DIGYNIA.

(Nat. Ord.—ASCLEPIADÆ.)

Generic Character.

Calyx alte 5-partitus, sepalis ovatis, parvis, patulis. *Corolla* alte 5-partita, laciniis præfloratione valvata, primo patulis dein refractis. *Corona staminea* summo gynostegio imposita, 5-phylla, foliolis cucullatis, cucullis ovatis v. superne dilatatis, semper e fundo processum aversum corniformem stigmati incurvum emittentibus. *Antheræ* membrana terminatæ. *Massæ pollinis* compressæ, apice attenuato affixæ, pendulæ. *Stigma* depressum, muticum. *Folliculi* pergamacei, læves v. ramentacei v. spinis innocuis onusti. *Semina* comosa.—Herbæ *perennes Americanæ præcipue Am. Sept.* Folia *opposita, verticillata, raro alterna; umbellæ interpetiolares. DC.*

Specific Name and Character.

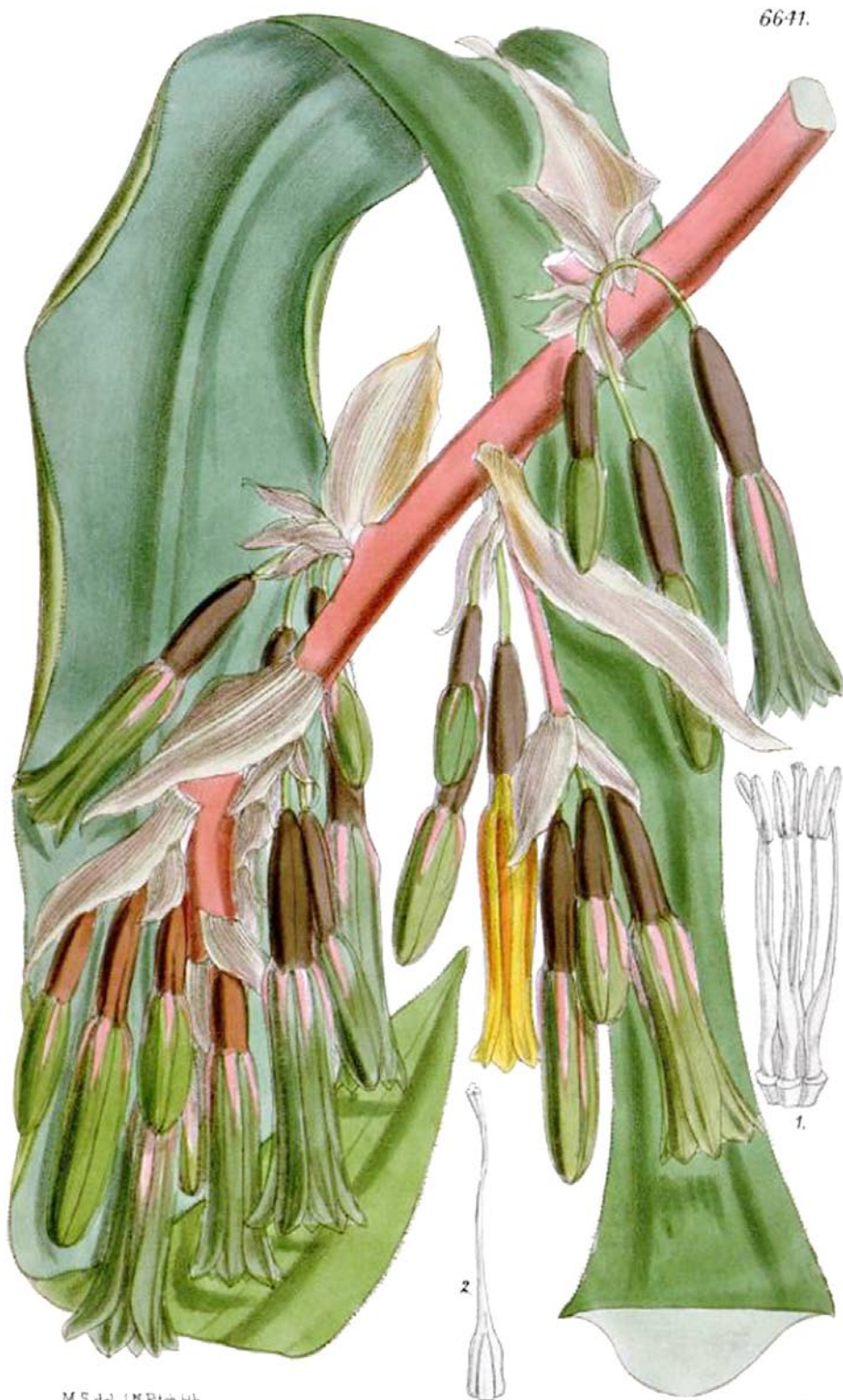
ASCLEPIAS *vestita*; caule herbaceo ramoso crasso hirsuto, foliis oppositis sessilibus lato-ellipticis subcordatis coriaceis glabris mucronatis, pedunculis intra-axillaribus crassis longitudine foliorum pedicellis floribusque erectis hirsutis, umbellis multifloris densis hemisphæricis, corollæ lobis reflexis, cucullis carnosis truncatis subcylindræo-ventricosus processu corniformi nullo.

A new and well-marked species of ASCLEPIAS, for a knowledge of which we are indebted to Mr. VEITCH of Exeter. He received seeds of it, we believe, from the southern states of North America, and reared it in the greenhouse, where it flowered in October, 1843. It is distinguished

distinguished from all the other species with which I am acquainted by the thick and very hairy stems and peduncles, by the peculiar form of the cuculli or leaflets of the staminal crown, and by the absence of the horn-like processes so common within the cucullus in other species of the Genus.

DESCR. Herbaceous, perennial. *Stems* straight, erect or declined, terete, very hairy. *Leaves* opposite, sessile, broadly elliptical, coriaceous, glabrous, mucronate. *Peduncles* solitary, intra-petiolar, about equal in length with the leaves, bearing a dense hemispherical umbel of numerous, rather large *flowers*. *Pedicels* slender, hairy. *Buds* purple. *Calyx* and *corolla* yellow-green, the latter with the segments reflexed. *Cuculli* or leaflets of the staminal crown, with their margins meeting together so as each to form a ventricose cylinder, truncated at the apex, quite destitute of horn-like process within. *Anthers* with the appendage incurved: at their base is an orange ring. *Pistils* two.

Fig. 1. Flower. 2. Stamens. 3. Leaflet (cucullus) of the staminal crown. 4. Inside view of an Anther:—magnified.



M.S. del. J.N. Pter. lith.

Vincent Brooks Day & Son Imp

TAB. 6641.

BESCHORNERIA BRACTEATA.

Native of Mexico.

Nat. Ord. AMARYLLIDACEÆ.—Tribe AGAVEÆ.

Genus BESCHORNERIA, *Kunth*; (*Kunth Enum.* vol. v. p. 844.)

BESCHORNERIA *tubiflora*; acaulis, foliis circiter 30 lanceolatis pedalibus vel sesquipedalibus glauco-viridibus margine scabris, pedunculo valido 2–3-pedali, floribus in paniculam rhomboideam ramis corymbosis dispositis, pedicellis ovario sæpe æquilongis, bracteis conspicuis scariosis rubellis oblongo-lanceolatis vel lanceolatis, perianthii segmentis oblanceolatis obtusis ovario $1\frac{1}{2}$ –2-plo longioribus, genitalibus limbo æquilongis.

B. bracteata, *Jacobi Index Agaveen.* p. 11 (*nomen solum*).

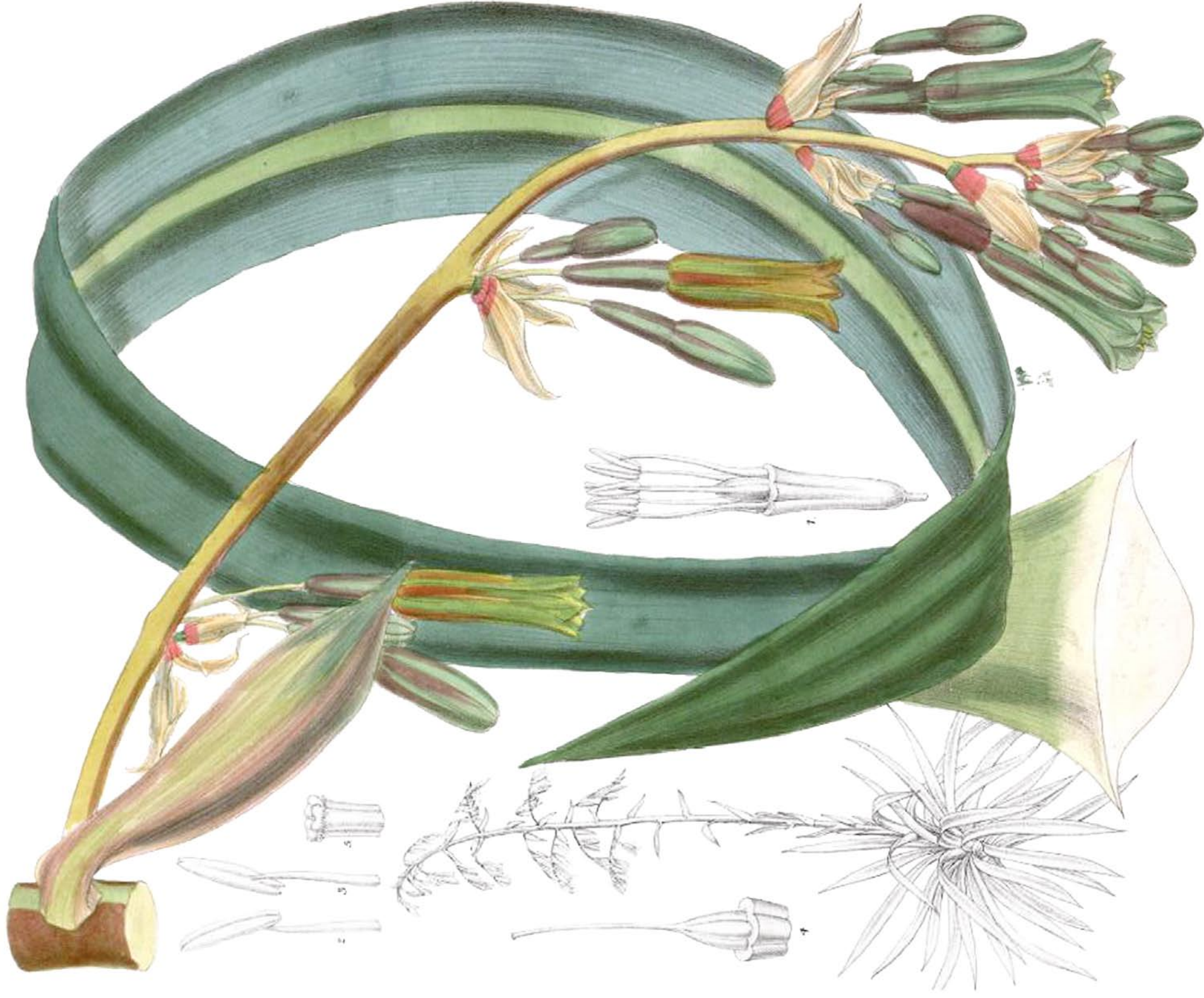
This is the most robust and copiously floriferous of all the *Beschornerias* which we had in a living state at Kew. The species of this genus seem to be very closely allied to one another, and a monograph of them is greatly needed. In his catalogue of the Agaveæ, General Von Jacobi enumerates nine species, but his monograph of the sub-order never reached this genus, and so far as I am aware only three out of the nine, all of which have been figured in the BOTANICAL MAGAZINE (viz. *tubiflora*, tab. 4642, *yuccoides*, tab. 5203, and *Tonelliana*, tab. 6091), have ever been described or characterized. Our drawing was made from a plant which has been for a long time in the Kew collection, which flowered for the first time in the month of March of this present year.

DESCR. Acaulescent. *Leaves* about thirty in a dense rosette, a foot or a foot and a half long, two inches broad at the middle, contracted to less than an inch above the dilated base, thin but firm in texture, glaucous green, scabrous on the margin. *Inflorescence* four to five feet long, including the robust peduncle, which is terete, reddish-brown, about as long as the panicle, and furnished with three or four

AUGUST 1ST, 1882.

adpressed lanceolate bract-leaves. *Panicle* rhomboid, the branches many-flowered and corymbose, the central ones eight or nine inches long, subtended by large scarious reddish bracts; pedicels half or three-quarters of an inch long; ultimate bracts oblong or lanceolate, about as long as the pedicels. *Ovary* trigonous, three-quarters of an inch to an inch in length; limb an inch and a half long, the oblanceolate obtuse segments free to the base, but permanently connivent, at first green, but turning yellowish-red when mature. *Stamens* and pistil as long as the perianth-segments; filaments thickened above the base.—*J. G. Baker.*

Fig. 1, Stamens and pistil; 2, pistil complete:—*both enlarged.*



TAB. 6768.

BESCHORNERIA DECOSTERIANA.

Native of Mexico.

Nat. Ord. AMARYLLIDACEÆ.—Tribe AGAVEÆ.

Genus BESCHORNERIA, *Kunth.*; (*Benth. et Hook. f. Gen. Pl.* vol. iii. p. 733.)

BESCHORNERIA *Decosteriana*; acaulis, foliis basalibus dense rosulatis oblanceolatis 2–2½-pedalibus crassis carnosulis obscure carinatis ad apicem acutum sensim attenuatis facie obscure viridibus dorso glaucescentibus margine scabris denticulatis, pedunculo valido erecto foliis multis reductis bracteiformibus prædito, panicle ramis multis patulis vel cernuis, pedicellis 2–3-nis gracilibus apice articulatis, bracteis magnis ovatis scariosis albidis rubro tinctis, ovario clavato apice libero, limbi segmentis oblanceolatis viridibus valde imbricatis, genitalibus limbo subæquilongis, fructu subgloboso coriaceo.

B. *Decosteriana*, *Hort. Leichtlin.*

Four species of *Beschorneria* have already been described and figured in the BOTANICAL MAGAZINE, viz. *B. tubiflora*, tab. 4642; *B. yuccoides*, tab. 5203; *B. Tonelii*, tab. 6091; and *B. bracteata*, tab. 6641. From all of these the present plant differs by its more robust habit, thicker and more fleshy leaves, and more ample panicle, with the flowers always two or three in a cluster. For horticultural purposes it is decidedly the finest representative of its genus. I am not aware from whom the name employed originated, but we received the plant under it some time ago from Herr Leichtlin, of Baden Baden. Our drawing was made from a specimen that flowered in the Cactus-house at Kew in the early months of 1884. Four other supposed species were also named by Jacobi (*pumila*, *Galeottei*, *Sehlechtendalii*, and *Verlindeniana*), but we have never had authenticated specimens of them, and they have not been described.

DESCR. *Leaves* twenty or more, arranged in a dense sessile basal rosette, oblanceolate, two or two and a half feet long, two and a half inches broad at the middle, narrowed gradually to the acute tip and to half that breadth above the dilated base, where it is half an inch thick, the thickest in

AUGUST 1ST, 1884.

texture of any known species of the genus, dull green on the upper surface, glaucescent beneath, obscurely carinate, minutely denticulate on the margin. *Peduncle* twice as long as the leaves, stout, erect, furnished with numerous reduced bract-like leaves. *Panicle* deltoid, about as long as the peduncle, with numerous spreading or cernuous branches, the lower a foot or more long; flowers in a few distant clusters of two or three each; pedicels reaching an inch or more in length, slender, articulated at the tip; bracts numerous, large, ovate, scariose, persistent, white tinged with bright red. *Ovary* clavate, protruded beyond the perianth-tube at the apex, furnished with six distinct grooves. *Perianth-limb* green, an inch and a half long, cut down nearly to the base into six much imbricated oblan-ceolate segments. *Stamens* and *style* reaching nearly to the tip of the perianth-segments. *Capsule* coriaceous, sub-globose.—*J. G. Baker.*

Fig. 1, A flower, *life size*, with the perianth-limb cut away; 2, front view of a stamen; 3, back view of a stamen; 4, upper part of ovary, with style; 5, stigma:—*all more or less enlarged.*



TAB. 6091.

BESCHORNERIA TONELII.

Native of Mexico.

Nat. Ord. AMARYLLIDÆ.—Tribe AGAVEÆ.

Genus BESCHORNERIA, *Kunth*; (*Kunth, Enum.* vol. v. p. 844.)

BESCHORNERIA *Tonellii*; foliis recurvis pedalibus elliptico-lanceolatis acuminatis asperulis subtilissime denticulatis, scapo 4-pedali sanguineo-purpureo, panicula 2-pedali inclinata, ramis paucis gracilibus patentibus sparsifloris, bracteis ovato-lanceolatis acuminatis pallidis, floribus nulantibus et pendulis, pedicellis ovariis perianthiique segmentis basi et dorso late sanguineo-purpureis, perianthii segmentis acutis viridibus.

BESCHORNERIA *Tonellii*, *Jacobi in Otto Hamburg. Garten- und Blumenz.*, vol. xx. p. 503, *sine descriptione*.

Had I not examined this plant in a living state in Mr. Wilson Saunders's garden, where it flowered in May of last year, I should certainly have identified it with the original *B. tubiflora*, Kunth, as figured at Tab. 4642 of this work; nor am I now sure, after a comparison of these real or supposed species, that they are more than varieties of one. The present is of a laxer habit, has much broader leaves, and brighter red purple scape and panicle, the latter with drooping branches; it has also rather longer more pendulous flowers with more acute perianth-segments. In all other respects, and especially in the floral organs, the two supposed species appear to be identical.

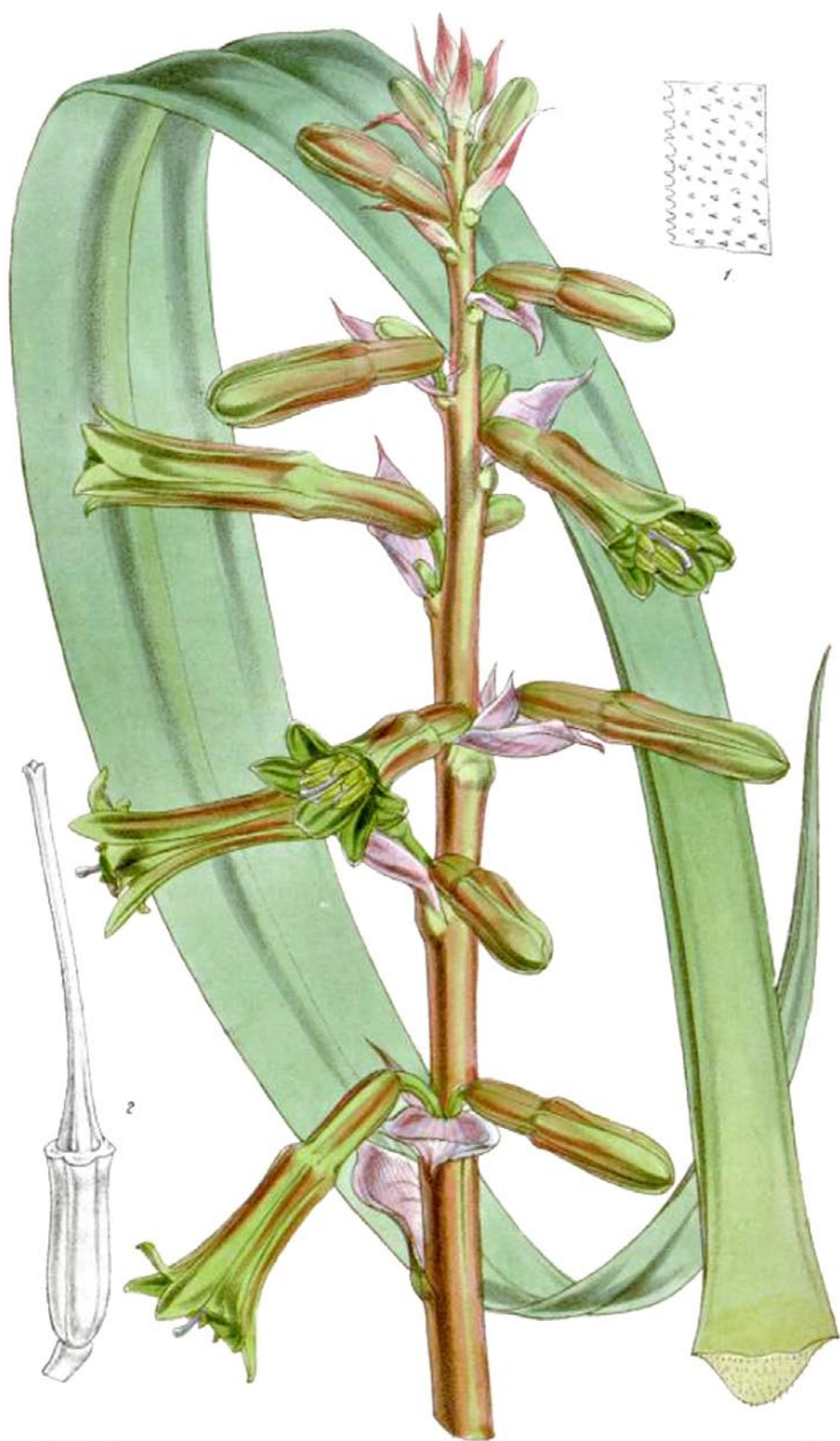
According to General Jacobi, who (in Otto's work, cited above), has given a sketch of the genera and species of *Agavacæ*, the genus *Beschorneria* contains four species, of which two are now figured in this Magazine, and the others, *B. yuccoides* and *B. Parmentieri* (*Yucca Parmentieri*, Roezl), are unknown to me. Unfortunately General Jacobi gives no description of *B. Tonellii*, his conspectus of *Aloineæ*, which was commenced in the work referred to, not having been continued to *Beschorneria*, and I am therefore dependent on the

APRIL 1ST, 1874.

authority of Mr. Wilson Saunders's garden for the name this plant bears.

DESCR. *Stem* very short. *Leaves* few, spreading, fifteen to twenty inches long, by two and a half inches broad, acuminate and keeled beneath towards the tip, minutely serrulate, scaberulous above, very glaucous, thick and hard, contracted into a flat thick petiole an inch broad. *Scape* four feet high, as thick as the middle finger below, and as well as the inflorescence of a bright red-purple colour. *Panicle* two feet long, slender, inclined, with few lax spreading simple branches bearing distant fascicles of two to five flowers; bracts several to each fascicle of flowers, three quarters to one and a quarter inches long, ovate-lanceolate, acuminate, spreading, membranous, pale. *Flowers* two and a half inches long, drooping, on slender pedicels half to three-quarters inch long. *Ovary* one inch long, obtusely 3-gonous, dark red-purple, 6-grooved. *Perianth* tubular; segments linear, slightly dilated at the rather spreading acute tip, dark blood-red below and on the midrib, the rest very bright verdigris green. *Stamens* nearly as long as the perianth, filaments dilated above the base; anthers linear-oblong. *Style* rather longer than the stamens, base conical; stigma obscurely 3-lobed.—*J. D. H.*

Fig. 1, Top of ovary with stamens and style:—*magnified*.



BESCHORNERIA TUBIFLORA.

Tube-flowered Beschorneria.

Nat. Ord. AMARYLLIDÆÆ.—HEXANDRIA MONOGYNIA.

Gen. Char. *Perigonium* superum, corollaceum, profunde sexpartitum, fundo nectarifluum; *laciniis* tubuloso-conniventibus, apice patulis, plurinerviis; sepalinis late lineari-spathulatis, acutiusculis; petalinis vix brevioribus, paulo latioribus, obtusis. *Stamina* 6, fundo perigoni inserta, æqualia, erecta, perigonio parum breviora. *Filamenta* subulata, distincta, basi paulo incrassata, in alabastro recta. *Antheræ* biloculares, lineari-lanceolatae, obtuso-emarginatae, basi sagittato-bilobae, dorso infra medium affixae, secundum longitudinem interne dehiscentes, demum incumbentes, mobiles. *Ovarium* inferum, subclavatum, obtuse hexagonum, triloculare; vertex liber, conicus, profunde trisulcatus; *ovula* in loculis crebra, biseriata, complanata, horizontalia, anatropa. *Columna stylina* erecta, tenuis, trisulcato-triangularis. *Stigma* columnæ stylinae equicrassum, indivisum, obtusum, papillosum. *Fructus* . . —Planta *acaulis*. Folia *radicalia* *cæpitosa*, *anguste linearia*, *carinato-canaliculata*, *recurvata*, *subtilissime pinuloso-denticulata*. *Scapus erectus*, *longissimus*, *simplex*. Flores *per paucos fasciculato-congesti*; bracteis *suffulti*, *longe pedunculati*, *nutantes*; fasciculis *remotis*, *secundi*. *Kth.*

BESCHORNERIA *tubiflora*.BESCHORNERIA *tubiflora*. *Kunth, Enum. Plant. v. 5. p. 844.*FOURCROYA *tubiflora*. "*Kunth et Bouché, Ind. Sem. Bot. Berol. 1845.*"

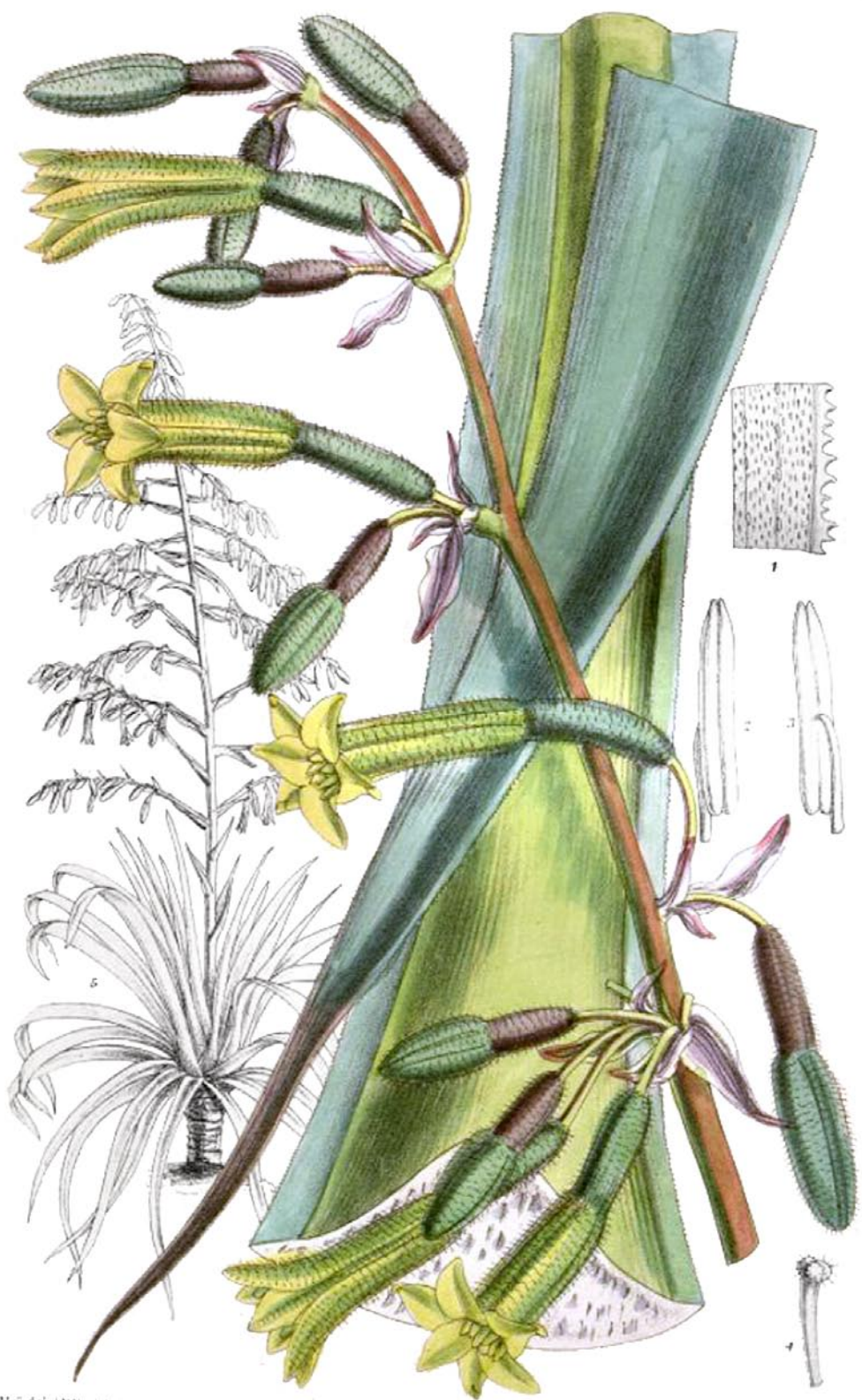
Imported from Mexico to the Royal Gardens of Kew, where it produced its Agave-like blossoms in a cool greenhouse in February 1852. Professor Kunth considers the genus to be intermediate between *Littæa* (Agave, sect. 2) and *Furcrea*, differing from the latter in habit, from the former in its included stamens, and from both in the tubular flower.

DESCR. Stemless. *Leaves* radical, tufted, spreading and more or less recurved, linear, sword-shaped, very much acuminate, eighteen inches to two feet long, thickened and narrowed and triangular at the base, minutely striated, glaucous-green, beneath rough to the touch, and when seen under the microscope muricated on the nerves, and sharply denticulated at the margin. *Scape* erect, in our plant four feet high, bearing a many-flowered

APRIL 1ST, 1852

erect *raceme*. *Flower* fascicled, two to four from the top of a blunt tooth or swelling, bearing a large purple-coloured, ovate, membranaceous *bractea*. *Flowers* drooping. *Pedicels* shorter than the bractea, green, terete, bearing each a subulate bracteole at its base. *Ovary* inferior, oblong, six-angled, purplish-green. *Perianth* divided to the top of the ovary, into six green, spatulate, nearly equal *segments* (brownish-purple externally), erect and approximating into a tube, the apices only spreading. *Stamens* six, equal, erect, rather shorter than the perianth; *filaments* subulate; *anthers* linear-oblong, pale green. *Style* dilated and six-angled at the base; *stigma* small, three-lobed. *W. J. H.*

Fig. 1. Portion of the back of the leaf. 2. Pistil:—*magnified*.



TAB. 7779.

BESCHORNERIA WRIGHTII.

Native of Mexico?

Nat. Ord. AMARYLLIDÆ.—Tribe AGAVEÆ.

Genus BESCHORNERIA, *Kunth*; (*Benth. et Hook. f. Gen. Pl.* vol. iii. p. 738.)

BESCHORNERIA *Wrightii*; trunco robusto, foliis ad 50 dense confertis patenti-recurvis ensiformibus 4–5 ped. longis crasse coriaceis medium versus 2-poll. latis basi dilatatis crassissimis margine denticulatis apice in acumen brunneum elongatum anguntatis utrinque læte viridibus dorso costa lata percursis, pedunculo brevi robusto foliis paucis abbreviatis erectis instructo, paniculæ 8-pedalis pyramidalis rhachi ramulisque patenti-recurvis glaberrimis roseis, floribus secus ramulos in fasciculos 2–4-flores dispositis nutantibus breviter pedicellatis pubescentibus, bracteis ¹/₂–1 poll. longis ovato-lanceolatis bracteolisque minoribus scariosis albis roseo striatis, pedicellis glaberrimis, ovario ³/₄ poll. longo cylindraceo, perianthii tubo ovario paullo longiore et latiore, segmentis lineari-spathulatis viridibus marginibus flavidis apicibus patulis intus flavis, antheris linearibus apicibus exsertis.

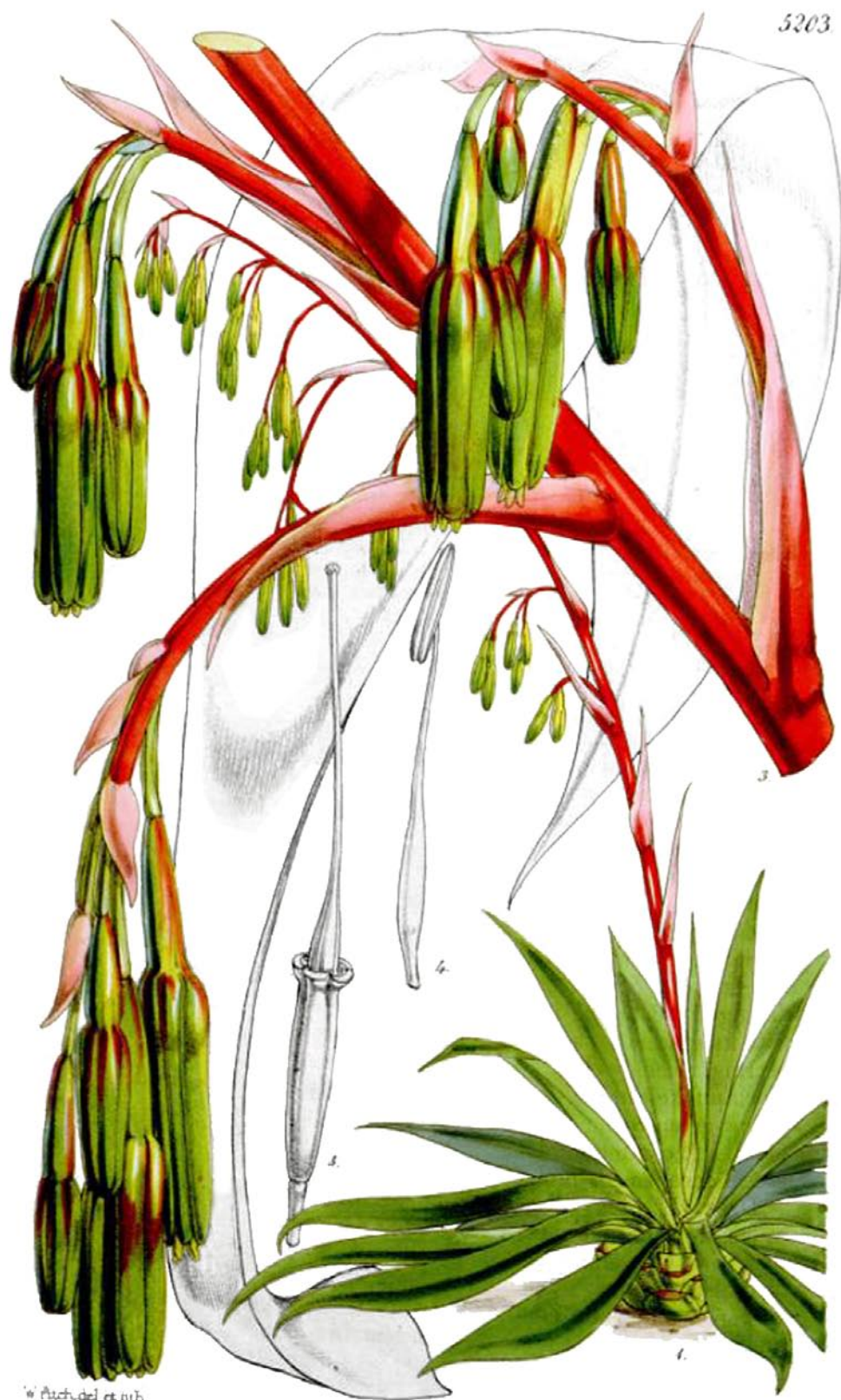
Beschorneria Wrightii is much the largest species of the five that have as yet flowered at Kew, and been figured in this work (tabs. 4642, 5203, 6641, 6091, 6768). Of these it is most nearly allied to *B. Dekosteriana*, C. Koch, Wochenschr. vii. (1864), 187 (*B. Decosteriana*, Baker, tab. 6768), which differs in the quite glabrous flowers. Of its native country, or the date of its introduction into the Royal Gardens of Kew, where it bore the erroneous name of *Furcrea Bedinghausii* ? a very different plant, there is no record. With the exception of a Texan species (*B. dubia*), Mexico is the native country of the genus. I have given it the name of Mr. Charles H. Wright, A.L.S., Assistant in the Kew Herbarium, who had examined and distinguished it from its congeners. It flowered in the Mexican division of the Temperate House of the Royal Gardens in June, 1900.

Descr.—*Stem* (of the specimen figured) eighteen inches high, six inches in diameter. *Leaves* about fifty, densely crowded, spreading and recurved, ensiform, coriaceous, four to five feet long by two inches broad about the middle; tip narrowed into a brown, dagger-like tip; base dilated,

JUNE 1ST, 1901.

very thick, bi-convex; margins very narrowly scarious, denticulate. *Peduncle* short, stout, bearing a few short, erect leaves. *Panicle* pyramidal, eight feet high; rhachis stout; branches and branchlets spreading or recurved, quite glabrous; bracts and bracteoles scarious, white, streaked with red. *Flowers* fascicled on the branchlets, shortly pedicelled, nodding, green, pubescent. *Ovary* three-fourths of an inch long, cylindric. *Perianth-tube* rather longer and broader than the ovary; segments erect, linear-spathulate, green, with broad, yellow margins, yellow within; tips obtuse, spreading. *Anthers* linear, tips only exserted. *Stigma* capitellate, three-lobed.—*J.D.H.*

Fig. 1, portion of margin of leaf; 2 and 3, anthers; 4, top of style and stigma:—*all enlarged*; 5, *reduced* view of whole plant.



W. Aitchison et al.

Vincent Brooks, Imp.

TAB. 5203.

BESCHORNERIA YUCCOIDES.

Yucca-leaved Beschorneria.

Nat. Ord. AMARYLLIDÆ.—HEXANDRIA MONOGYNIA.

Gen. Char. (*Vide supra*, TAB. 4642.)

BESCHORNERIA *yuccoides*; foliis pedilibus sesquipedalibusque lanceolatis inferne angustatis basi dilatato-vaginatissimis apice acuminatissimis, scapo 3–4-pedali gracili bracteato racemoso-paniculato corallino, ramis gracillimis elongatis floribusque pendentibus, bracteis roseis, sepalis clausis rectis.

BESCHORNERIA *yuccoides*. *Hortul.*

Some years ago Lord Ilchester distributed seeds of a *Beschorneria*, which was considered to be different from the only described one, *B. tubiflora* (see our TAB. 4642), and which we have since understood bears the name of *B. yuccoides* in gardens. A plant of this was in perfection in the succulent-house of our friend Mr. Wilson Saunders at the same time with the *Yucca canaliculata*, given in the present number. The accompanying figure will show better than words can do how very different this is from *B. tubiflora*. It is indeed a most striking plant, distinguished by the long, slender, coral-like scape and panicle, with its gracefully slender drooping branches, of the same colour, bearing racemes of large pendent green flowers, in shape not much unlike those of some long-flowered *Fuchsia*, but of a dark yellow-green colour, tinged with red. It is a highly ornamental plant, and continues a long time in blossom. It requires a cool greenhouse, and is probably a native of Mexico.

DESCR. *Leaves* radical (but the falling away of the older ones at length causes an imperfect stem to appear, thick and short), a foot to a foot and a half long, subcoriaceous, glaucous-green, lanceolate, narrowed below the middle, dilated at the very base, the apex pungently and narrow-acuminated, asperous beneath and at the margin. *Scape* three to four feet long, the upper half forming a *panicle* of slender drooping (as it were from the weight

SEPTEMBER 1ST, 1860.

of the flowers) branches, of a rich coral-red colour. *Bracteas* membranaceous, lanceolate, acuminate, deep rose-colour. *Flowers* pendent, nearly three inches long, including the inferior ovary, which is cylindrical, narrower than the perianth. *Sepals* linear-oblong, dark-green, with a yellow tinge, straight, approximating so as to form a *tube*. *Stamens* scarcely exerted. *Filaments* subulate. *Anthers* linear. *Style* filiform, dilated, and trisulcate at the base.

Fig. 1. Very much reduced figure of a flowering plant. 2. Leaf. 3. Portion of a panicle:—*nat. size*. 4. Stamen. 5. Pistil:—*magnified*.



BILLBERGIA BIVITTATA.

Rib banded Billbergia.

Nat. Ord. BROMELIACEÆ.—HEXANDRIA MONOGYNIA.

Gen. Char. Perigonii superi sexpartiti lacinie exteriores calycine, æquales, ecarinatae, erectae vel spiraliter convolutae, aristatae vel muticae, apice hinc oblique dilatatae, interiores petaloideae, exterioribus multo longiores, apice patentes v. erectae, intus basi squamosa v. biaristatae, rarius nudae. *Stamina* 6, epigyna; *filamenta* filiformia, tria plerumque perigonii lacinii interioribus adnata; *anthera* ovata, dorso affixae, incumbentes v. suberectae. *Ovarium* inferum, triloculare. *Ovula* plurima, e loculorum angulo centrali pendula, anatropa. *Stylus* filiformis; *stigmata* 3, petaloidea, convoluta v. linearia, crispa. *Bacca* subglobosa, trilocularis. *Semina* plura, nuda vel ad umbilicum filo gracili appendiculata.—Herbæ *Americanae tropicae*, sæpius super arborum truncis pseudo-parasiticae, exscapae vel scapigeræ; foliis ligulatis, linearibus vel ensiformibus, ut plurimum spinuloso-serulatis; floribus spicatis, paniculatis vel racemoso-paniculatis; spathis floralibus nunc magnis, nunc parvis vel amplis, coloratis. *Endl.*

BILLBERGIA *bivittata*; acaulis, foliis coriaceis firmis lanceolatis acuminatissimis argute serratis undulatis fusco-viridibus lineis duabus albo-vittatis, spica inter folia sessili, floribus albis, petalis calycinis imbricatis mucronatis, corollinis spathulatis.

BILLBERGIA *vittata*. *Linden Cat.*

This pretty plant came to us under the name of *Billbergia vittata*, from Linden, in 1859. It is certainly not the plant of that name described by Beer in his review of the Order, nor is it the *B. Moreliana vera* of Lemaire's 'Jardin Fleuriste,' and Paxton's 'Flower Garden,' both of which Beer quotes under *vittata*. It is evidently a near ally of *Tillandsia acaulis*, Lindl. (Bot. Reg. t. 1157); but as the calyx is distinctly superior, it cannot be referred to that genus as characterized in Endlicher. Probably it should be referred to Beer's genus *Chryptanthus*, of which no generic characters have been published by that author. It is, no doubt, a native of South America, but we are not aware of its exact country.

DESCR. *Plant* almost stemless. Leaves closely set just above
SEPTEMBER 1ST, 1861.

the root, spreading, recurved, about a span long, and one to one and a half inch broad, rather undulate, acutely toothed at the margin, under surface dull brown, upper green, with two broad, buff, longitudinal bands, which pass into dull red at the base of the leaf. *Flowers* collected into a short dense spike, which is wholly sunk amongst the leaves, white. *Bract* oblong, lanceolate, acute. *Perianth* superior. *Calyx* of three cuneate segments, each obliquely expanded, and mucronate at the apex. *Corolla* of three, white, spreading, spatulate lobes. *Stamens* six, three attached to the petals, short, with sterile(?) anthers in the pistillate flowers. *Pistil* absent in some flowers; where present filiform, expanding into three patent lobes.

Fig. 1. Flower. 2. Petal and stamen. 3. Pistil:—*magnified*.



W. J. H. d. d.

Pub. by J. Curtis, Walworth, Marsh, Ltd. 1899

(2892)

BILLBERGIA CRUENTA. BLOOD-STAINED
BILLBERGIA.

Class and Order.

HEXANDRIA MONOGYNIA.

(Nat. Ord.—BROMELIACEÆ.)

Generic Character.

Calyx superus. *Petala* convoluta, basi squamosa. *Stam.* hasi perianthii inserta. *Stylus* filiformis. *Stigmata* linearia, convoluta. *Capsula* baccata ? *Semina* nuda. *Lindl.*

Specific character and Synonym.

BILLBERGIA * *cruenta*; foliis ligulatis obtusis mucronatis dentato spinosis apice (sæpissime) sanguineo-maculatis, bracteis lato-ovalibus imbricatis obtusissimis concavis, spica capitata subsessili.

BROMELIA *cruenta*. *Graham in Edin. Phil. Journ.*

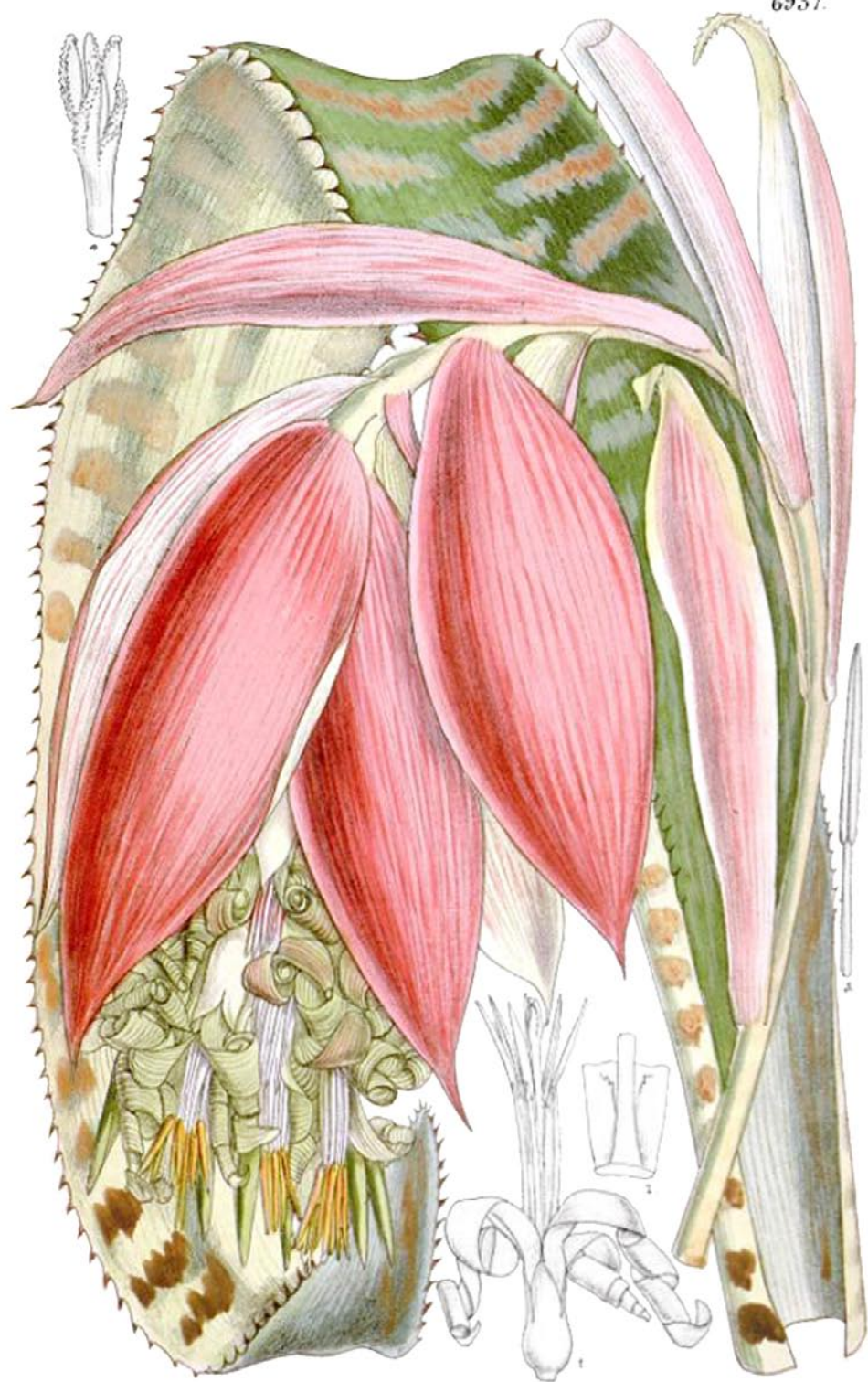
DESCR. *Plant* probably parasitic. *Stem* short ascending, cylindrical. *Stolons* axillary, sheathed with large, imbricated, ovate, adpressed, entire scales. *Leaves* (one and a half to two feet long, three inches broad,) numerous, imbricated, erect at their base, spreading above, linear, obtuse, mucronate, serato-spinous, very hard and rigid, bright green and concave above, pruinose in transverse stripes and rounded below, sprinkled irregularly with blood-red stains, and marked with the same colour on the anterior surface for above half an inch at the apex, greatly dilated at their base, and forming a cup, from which water thrown upon the plant does not escape. *Spike* terminal, capitate, bracteate

* So named by THUNBERG, in honour of GUSTAVUS JOHN BILLBERG, an excellent Swedish Botanist.

teate, but without coma, nearly sessile, and raising only its upper surface above the water which the cup formed by the leaves contains. *Bracteæ*, one on the outside of each flower, ovate, convex internally, and somewhat cucullate broadest on the outside of the capitulum, and there longer than the calyx, shorter than it in the centre. *Flowers* expand in succession from without inwards, generally only one or two at a time, standing three-fourths of an inch above the surface of the capitulum. *Calyx* ovate, acuminate green, glabrous, shining, segments overlapping, great dilated upon one side, which is scariose, transparent, and passes between the next segment and the corolla (then and a half lines long). *Corolla* (one inch four and a half lines long) three-parted, segments subequal, unguiculate, claws white, linear, glabrous, equal in length to the calyx (two and a quarter lines broad) erect, bearing on their inside at their base large, connate, smooth, shining, colourless, nectariferous glands; limb spreading, segments ovate, acuminate, blue, slightly striated in the centre, and paler behind and towards the edges. *Stamens* inserted at unequal heights into the claws, three into one, two into another, and one into the third; filaments flattened, similar in structure and colour to the claws of the corolla, inserted into the back of the anthers, and continued along these to their apices; anthers projecting into the throat of the corolla, of equal length, and approximating at their apices (nearly three lines long), white, acuminate, cleft from the base for about a quarter of their length, above which they are connate along the back with the filaments; pollen white. *Pistil* equal in height to the stamens; stigmata three, flattened ciliated on one edge, spirally twisted; styles three, united throughout their whole length; germen inferior, glabrous three-celled; ovulæ very numerous, small, attached to central receptacle.

This plant was brought to the Edinburgh Botanic Garden by Captain GRAHAM, of H. M. Packet Service from Mr. HARRIS, at Rio Janeiro, in 1824, and has grown freely in rich soil in the stove, pushing up three crowns from root, only one of which has yet flowered. GRAHAM.

Fig. 1. Flower scarcely magnified. 2. Petal, with the Stamens. 3. Pistil. 4. Section of the Germen.—*Magnified.*



MS. del. J.N. Pich. lith.

Vincent Brooks Day & Son Imp

TAB. 6937.

BILLBERGIA DECORA.

Native of the Amazon Valley.

Nat. Ord. BROMELIACEÆ.—Tribe BROMELIÆÆ.

Genus BILLBERGIA, *Thunb.*; (*Benth. et Hook. f. Gen. Pl.* vol. iii. p. 664.)

BILLBERGIA (*Helicodea*) *decora*; acaulis, foliis 8–10 loratis dense rosulatis acutis sesquipedalibus vel bipedalibus facie albo-lepidotis dorso fasciis albo-lepidotis transversalibus percursis margine aculeis crebris parvis brunneis ascendentibus armatis, pedunculo cernuo subpedali furfuraceo, foliis bracteiformibus pluribus magnis oblongo-lanceolatis rubellis, floribus 20–30 in spicam densam pendulam aggregatis, ovario oblongo lepidoto sulcato calycis segmentis parvis ovatis, petalis elongatis lanceolatis viridibus spiraliter revolutis, staminibus petalis brevioribus antheris linearibus basifixis, styli ramis stigmatosis linearibus spiraliter contortis.

Billbergia decora, *Poepp. et Endlich. Nov. Gen.* p. 42, tab. 57; *Beer Brom.* p. 124; *E. Morren in Belg. Hort.* 1875, p. 221, tab. 13, 14.

B. Baraquiniana, *Lemaire in Ill. Hort.* 1864, tab. 421; *K. Koch Wochen*, 1865, p. 141.

This is one of the very finest for horticultural purposes and most curious of all the *Billbergias*. It belongs to the subgenus *Helicodea*, which has green petals, which curl up spirally soon after the flower expands. Its nearest ally is *B. zebrina*, Lindl. (*Bromelia zebrina*, Herbert in Bot. Mag. t. 2686), which is well known in cultivation. The present plant differs from *zebrina* by its longer petals, much shorter denser spike, longer coloured bracts and less deeply sulcate ovary. It was first discovered by Poeppig in the year 1831 in the virgin forests of Yurimagues, but it was not introduced into cultivation until 1864, when it was sent by M. Baraquin to M. Verschaffelt of Ghent. Our drawing was made from a plant that flowered last January in the collection of Sir George Macleay at Pendell Court, which was forwarded to Kew for identification.

DESCR. Acaulescent. *Leaves* eight or ten in a rosette, lorate, acute, one and a half or two feet long, two inches broad at the middle, three inches at the dilated clasping base, firm in texture, thinly mealy all over the face, furnished with irregular transverse mealy bands on the back,

MAY 1ST, 1887.

margined with small close brown horny ascending spines. *Peduncle* a foot long, cernuous, green, slightly furfuraceous; lower bract-leaves distant, lanceolate; upper eight to nine aggregated towards the base of the spike, large, oblong-lanceolate, bright red. *Spike* dense, pendulous, simple, three to four inches long, almost hidden by the large bracts; rachis mealy. *Ovary* oblong, mealy, shallowly sulcate, pale green, finally half an inch long; calyx-segments small, ovate, greenish. *Petals* lanceolate, green, two inches long, curling up spirally from the base. *Stamens* shorter than the petals; anthers linear, basifixed, yellow. *Style* reaching to the tip of the anthers; stigmatose forks linear, twisted spirally.—*J. G. Baker.*

Fig. 1, Complete flower, *life-size*; 2, base of petal, showing the insertion of a stamen; 3, anther and upper part of filament; 4, stigmas and top of style:—*all more or less enlarged.*



M. S. del. J. N. Fitch lith

Vincent, Brooks Day & Son Imp

TAB. 6632.

BILLBERGIA EUPHEMIAE.

Native of Brazil.

Nat. Ord. BROMELIACEAE.—Tribe BROMELIEAE.

Genus BILLBERGIA, *Thunb. et Holm. (Roem. et Schultes Syst. Veg. vol. vii. p. 71.)*

BILLBERGIA *Euphemia*; acaulis, copiose stolonifera, foliis 5–6 lanceolatis rigidis suberectis dimidio inferiori arcte convolutis ad apicem sensim angustatis sordide viridibus utrinque tenuiter albo-lepidotis haud fasciatis, aculeis marginalibus minutis deltoideis, pedunculo albo-lepidoto foliis breviori bracteis lanceolatis scariosis obscure rubellis, racemis laxis cernuis 6–12-floris, bracteis inferioribus magnis lanceolatis, ovario oblongo-trigono, sepalis oblongo-lanceolatis subacutis rubellis, petalis lingulatis basi appendiculatis apice splendide violaceis ungue flavo-viridibus, staminibus petalis distincte brevioribus, stigmatibus arcte convolutis.

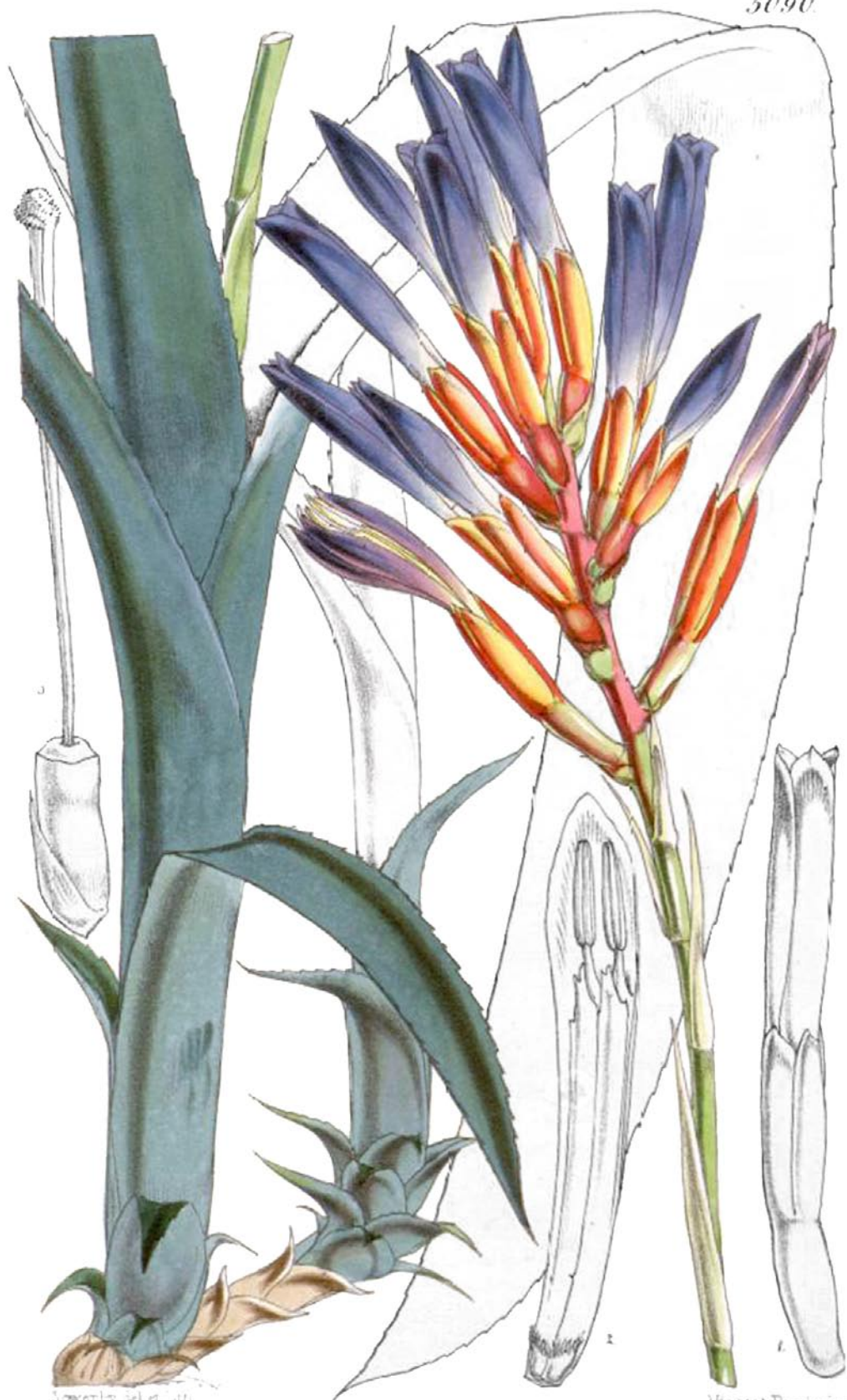
B. *Euphemiæ*, *E. Morren in Belg. Hort.* vol. xxii. (1872), p. 11, t. 1–2.

Of all the Bromeliaceae, the greatest favourites with cultivators have been the Billbergias with large persistent violet-tipped flowers and lax drooping or erect racemes. They are all natives of Central and Southern Brazil, where they grow with Orchids and other epiphytes on trunks in the forests. The present plant is a comparatively new species of this group, of which *B. vittata*, *Moreliana*, *macrocalyx*, *Saundersii*, and *iridifolia* are the best-known garden representatives. Its history is not quite clear, but it has been known for some time in the Belgian gardens (where from its copiously-stoloniferous habit it is sometimes called *Billbergia repens*), and it is believed to have been originally introduced by De Jonghe. It was first described and figured in a flowering state by Professor Morren ten years ago, and named in compliment to Madame Morren. We have had it for many years at Kew, and it flowered with us in 1878, and now again in 1882, when the present drawing was made. It grows so freely that I have no doubt it will hold its ground in our conservatories.

JUNE 1ST, 1882.

DESCR. Acaulescent, copiously stoloniferous. Produced leaves five or six in a closely convolute rosette, which is cylindrical in the lower half, about a foot long, one and a half or two inches broad, horny in texture, narrowed gradually to an acute point, dull green on both surfaces, covered, especially beneath, with a thin layer of white lepidote scales, not at all fasciated, the marginal prickles minute, deltoid. *Peduncle* nearly as long as the leaves, reddish, terete, farinose, furnished with several scariose lanceolate dull reddish bract-leaves. *Flowers* six to twelve in a lax drooping raceme with a mealy flexuose rachis, nearly sessile, the lower ones subtended by large lanceolate scariose bracts, like those of the peduncle. *Ovary* oblong-trigonous, a third or half an inch long. *Sepals* oblong-lanceolate, horny, reddish, subacute, longer than the ovary. *Petals* lingulate, about two inches long, with a greenish-yellow claw, with a pair of small fimbriated basal scales and bright violet-coloured tip. *Stamens* shorter than the petals; anthers linear-oblong, versatile, bright yellow. *Stigmas* protruded beyond the anthers, strongly convolute.—*J. G. Baker.*

Fig. 1, Petal, with stamen, *life size*; 2, a basal scale of the petal; 3 and 4, anthers; 5, stigmas; 6, horizontal section of ovary:—*all enlarged.*



Jowarby, tel. n. 1021

Vincent Brooks, 1890

BILLBERGIA LIBONIANA.

Libon's Billbergia.

Nat. Ord. BROMELIACEÆ.—HEXANDRIA MONOGYNIA.

Gen. Char. (Vide supra, TAB. 4756.)

BILLBERGIA *Liboniana*; surculosa, foliis radicalibus ligulatis acutis mucronatis margine serrulatis supra læte viridibus subtus obscure albido-furfuraceis, scapo erecto bracteato, bracteis subulatis appressis, spica laxa 6–10-floro, floribus erectis, sepalis erectis rubris, petalis calyce duplo longioribus erectis lineari-oblongis intense purpureo-caeruleis basi albidis intus laminis duabus elongatis apice dentatis instructis et ad basin squamis duabus obovatis longe fimbriatis.

BILLBERGIA *Liboniana*. *De Jonge, Journ. d'Hort. Prat. Mars*, 1851, *cum icone*. *Lem. Jard. Fleur.* v. 3. p. 197. *Planch. Flore des Serres*, v. 10. p. 195, *cum ic.*

Received at Kew from the Belgian gardens, where it is stated to have been introduced from the vicinity of Rio de Janeiro, by “le voyageur naturaliste Libon,” after whom it has received its specific name. It is a plant of some beauty, and is another plant added to those *Bromeliaceæ* which are highly deserving of cultivation in our hothouses. Where the collection of these (in amount of species, we mean) is considerable, some or other is in flower at all seasons of the year, and not a few in the depth of winter. The drawing was taken from a plant in Kew Gardens, which flowered in August 1858.

DESCR. The species is small in stature, compared to many of the *Bromeliaceæ*, scarcely more than a foot in height, independent of the scape. The plant is sarmentose, and these runners, by which the species is easily increased, are nearly half an inch thick, terete, scaly with small, rigid, broad, subulate, spinescent abortive leaves. From these runners tufts of foliage arise, with no visible stem: the lowest ones are squamiform, like those of

DECEMBER 1ST, 1858.

the runners; the inner become gradually larger, a foot long, ligulate, the sides convolute, mucronately acuminate at the apex, the margin spinescently serrated, the upper or inner side of the leaf is dark-green, the outer paler from a whitish furfuraceous substance with which it is more or less invested. *Scape* arising from the centre of the foliage, and scarcely exceeding it in length, erect or nearly so, rather slender, bracteate with long, subulate, erect, rigid bracts, becoming shorter in the inflorescence. *Spike* lax, of from five to twelve erecto-patent flowers. *Sepals* oblong, erect, appressed, imbricate, acute, red, with a paler streak. *Petals* twice as long as the calyx, white below, the rest deep purple-blue, linear-oblong, obtuse, erect, straight, the sides convolute, with two linear lamina within, almost as long as the petals, toothed at the apex; and two small scales at the base, long-fringed. *Filaments* inserted just above the laminae, two on each petal. *Ovary* terete, inferior. *Style* shorter than the petals. *Stigma* three-lobed.

Fig. 1. Flower. 2. Petal, with two stamens, laminae, and scales. 3. Pistil:—*magnified*.



BILLBERGIA MACROCALYX.

Long-calyxed Billbergia.

Nat. Ord. BROMELIACEÆ.—HEXANDRIA MONOGYNIA.

Gen. Char. (Vide supra, TAB. 4756.)

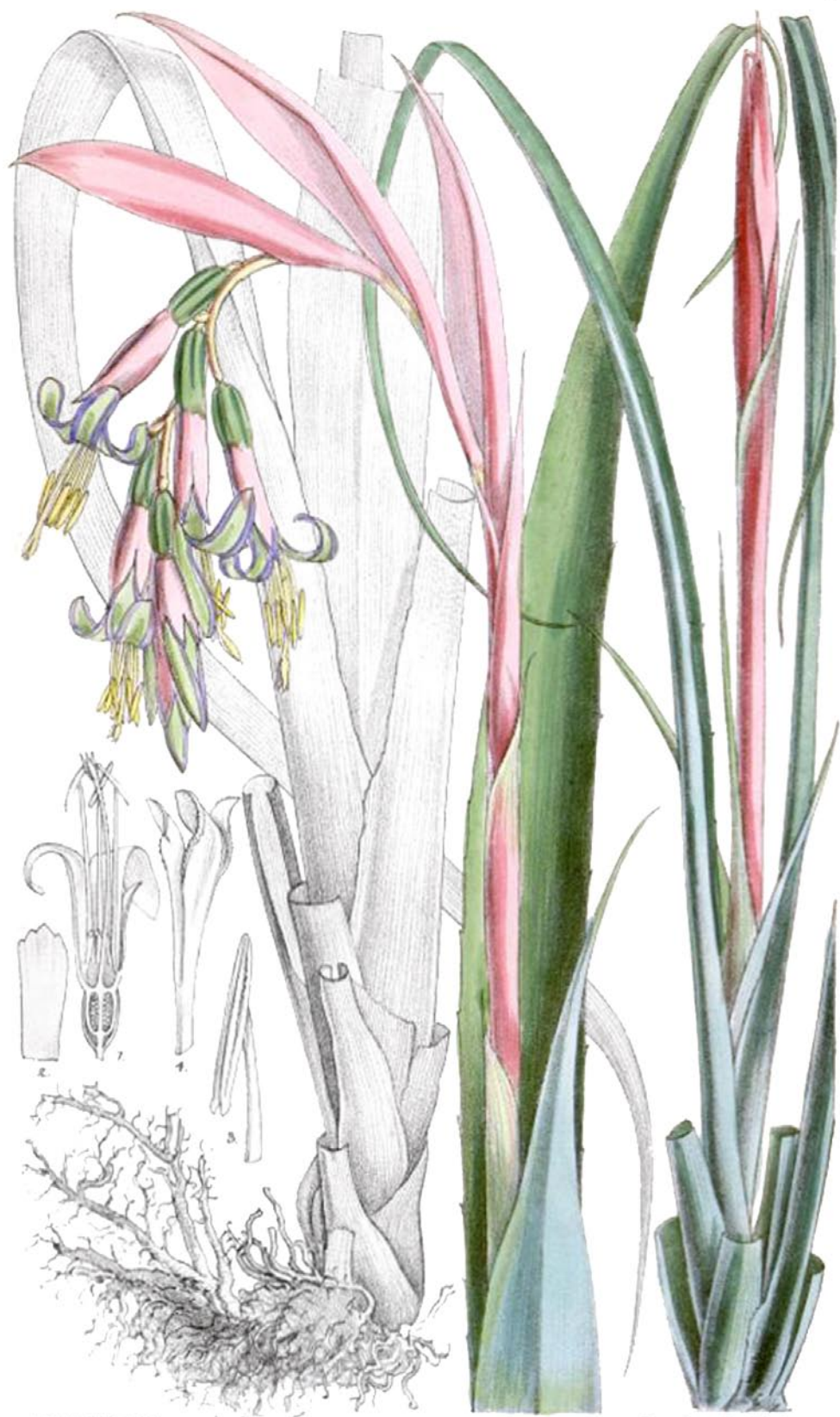
BILLBERGIA *macrocalyx*; rhizomate crasso cylindraceo repente, foliis erecto-patulis lato-lingulatis acutissimis concavo-caniculatis apice planiusculis recurvis remote spinuloso-serratis viridibus pallide maculatis dorso subfastuosis, bracteis amplis ovato-oblongis brevi-acuminatissimis concavis intense roseis, bracteolis subnullis, spica simplici thyrsoformi, ovario infero calyceque biunciali farinosis, sepalis lineari-oblongis, petalis calyce $\frac{1}{3}$ longioribus spatulatis apice patentibus pallide viridibus ad marginem purpureo-tinctis, squamis petalorum elongatis bidentatis ad basin squamula ciliata auctis.

None of the described *Bromeliaceæ*, whether under *Puya*, *Billbergia*, or *Tillandsia* (for the genera need a thorough revision to render them intelligible), seem to correspond with this species, which our garden owes to the kindness of our friend J. Wetherell, Esq., when he was our Consul at Bahia, where it is a native on the mossy branches of trees. Brazil indeed seems to abound in novelties of this family; and we have had more than once occasion to remark how well the species are worthy of cultivation, from the great beauty of the flowering spikes: the beauty however is generally due more to the rich colouring of the large bracts, or spathes as they are sometimes called, than to that of the blossoms. The present one may vie with any other in this particular, and will rank near to our *B. Wetherelli* (see our Tab. 4835), and still more near perhaps to *B. thyrsoides* (Tab. Nostr. 4756); but is very distinct from both.

DESCR. *Rhizome* thick, elongated, terete. *Leaves* a foot or a foot and a half long, broad-lingulate, erecto-patent, canaliculately concave, swollen and inflated, as it were, at the amplexicaul base, plane towards the apex, and recurved at the very acute or shortly acuminate point; the margin is rather remotely spinu-

loso-serrate; the *colour* darkish-green, with scattered pale spots, somewhat transversely fasciated at the back. *Spikes* simple, but thyriform; below are several large, laxly imbricated, very concave, deep rose-coloured *bracts*. *Bracteoles* at the base of each flower small, deciduous. *Rachis* and *calyx* very farinoso-tomentose. *Ovary* quite inferior. *Sepals* very large, linear-oblong, erect, appressed. *Petals* one-third larger than the calyx, spatulate, light yellow-green, edged with pale blue livid-purple. *Scales* of the petals very long, each two-toothed, and with ciliated appendages at the base. *Anthers* bright orange.

Fig. 1. Base of a petal, with scales, and two stamens,—*magnified*.



AB 44 JN Hook-Lab

I. Reeve A.C. London

"Monocot. Bromelid. D. & J. L. L."

TAB. 6423.

BILLBERGIAS NUTANS.

Native of South America.

Nat. Ord. BROMELIACEÆ.—Tribe ANANASSEÆ.

Genus BILLBERGIA, *Thunb. & Holm.*; (*K. Koch. in Walp. Ann.* vol. vi. p. 72.)

BILLBERGIA *nutans*; acaulis, stolonifera, foliis basalibus productis 12–18 lineari-ensiformibus sesquipedalibus vel bipedalibus chartaceis sursum falcatis ad apicem sensim attenuatis margine denticulatis facie viridibus deorsum canaliculatis dorso striatis parce albo lepidotis haud fasciatis, pedunculo subpedali foliis scariosis bracteiformibus superioribus rabellis, floribus 4–8 in racemum subspicatum cernuum dispositis, bracteis minutis deltoideis, ovario oblongo glabro viridi multisulcato, sepalis lanceolatis acutis ovario longioribus, petalis lanceolatis viridibus margine coeruleis basi squamatis sepalis duplo longioribus, staminibus petalis æquilongis antheris lineari-bus versatilibus, stigmate exserto.

B. *nutans*, *H. Wendl. in Regel. Gartenfl.* vol. xviii. (1869) p. 162 t. 617 ; *E. Morren in Belg. Hort.* 1876, p. 220 t. 15.

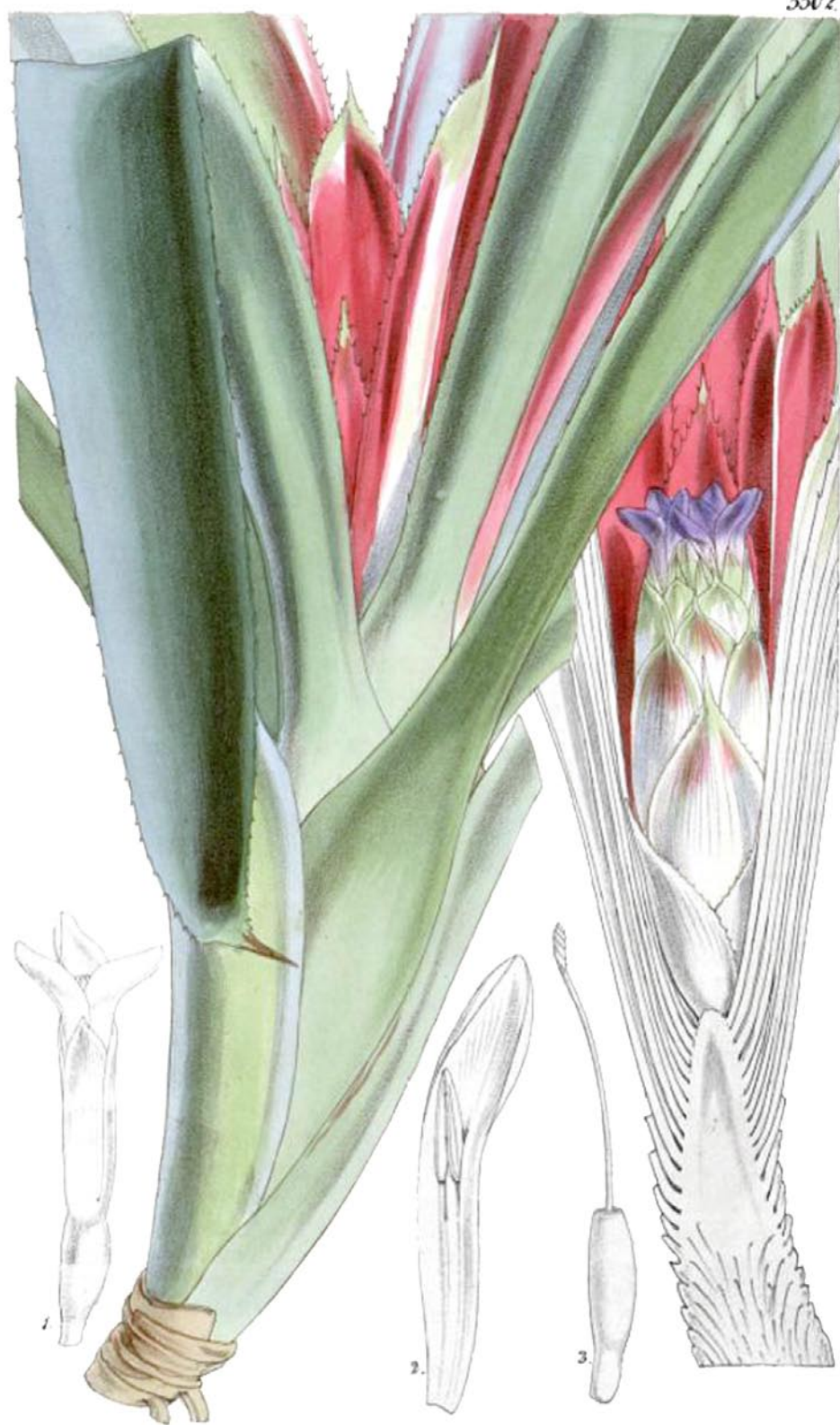
This is one of the best marked species of that section of the genus *Billbergia* which is characterised by a comparatively lax drooping inflorescence and bright red bract-like upper stem-leaves, to which belong many of the species which are most highly prized in horticulture. This one may be recognised, at a glance, by its narrow acute leaves and green petals with a sudden blue edge. The precise country to which it belongs is not known, and there are no dried wild specimens in our London herbaria, but the head-quarters of its allies are Central and Southern Brazil. We have had the plant at Kew for some time. The plate was drawn from a specimen that flowered at Kew in January, and it has also been flowered this winter by Mr. Chas. Green, in the fine collection of Sir George Macleay. It was first introduced into cultivation about 1868.

DESCR. Acaulescent, stoloniferous. *Leaves* twelve to eighteen produced in a utricular rosette, linear-ensiform, reaching finally a length of one and a half or two feet, half

APRIL 1ST, 1878.

an inch broad at the top of the dilated base, narrowed gradually to the point, falcate in the upper half, minutely toothed, the face bright green, the back finely striped and thinly white-lepidote, without any bands or spots. Peduncle central, about a foot long, its bract-leaves erect and lanceolate, the lower ones greenish, the upper bright red. *Flowers* four to eight in a cernuous subspicate raceme; pedicels very short or none; bracts minute, deltoid. *Perianth* about two inches long; ovary oblong, naked, bright green, with many irregular vertical ribs and hollows. *Sepals* lanceolate, acute, about half an inch long. *Petals* lanceolate, twice as long as the sepals, bright green, with a sudden blue edge, with a couple of small scales near the base. *Stamens* reaching to the top of the petals; anthers yellow, linear, versatile. *Style* a little longer than the stamens; stigmas convolute.—*J. G. Baker.*

Fig. 1, a flower cut through vertically, *nat. size*; 2, a scale from the base of a petal; 3, an anther; 4, stigmas:—*the three last magnified.*



W. Pichard et lith.

Vincent Brooks Imp.

BILLBERGIA OLENS.

Putrid-swelling Billbergia.

Nat. Ord. BROMELIACEÆ.—HEXANDRIA MONOGYNIA.

Gen. Char. Perigonii superi sexpartiti laciniae exteriores calycinæ, æquales, ecarinatae, erectae, v. spiraliter convolutae, aristatae vel muticae, apice hinc oblique dilatatae, interiores petaloideae, exterioribus multo longiores, apice patentes vel erectae, intus hasi squamosae v. bicristatae, rarius nudae. Stamina 6, epigyna; filamenta filiformia, tria plerumque perigonii laciniis interioribus adnata; antherae ovatae, dorso affixae, incumbentes vel suberectae. Ovarium inferum, triloculare. Ovula plurima e loculorum angulo centrali pendula, anatropa. Stylus filiformis; stigmata 3, petaloidea, convoluta, v. linearia crispa. Bacca subglobosa, trilocularis. Semina plura, nuda v. umbilicum filo gracili appendiculata.—Herbæ Americanæ tropicæ, sæpius super arborum truncis pseudoparasiticæ, exscapa vel scapigeræ, foliis ligulatis, linearibus vel ensiformibus, ut plurimum spinuloso-serratis, floribus spicatis paniculatis vel racemoso-paniculatis, spathis floralibus nunc nullis, nunc parvis v. amplis, coloratis. Endl.

BILLBERGIA oleans; caule inclinato brevi cicatricato, foliis numerosis terminalibus erecto-patentibus subpedalibus ligulatis canaliculatis spinuloso-serratis basi arete imbricatis subventricosis apice mucronato-pungentibus, floralibus multo brevioribus erectis coccineis, spica oblonga sessili foliis floralibus multo brevioribus bracteata, bracteis late ovatis acuminatis arete imbricatis pallide viridibus rubro-tinctis, corollis paululum exsertis intense purpureis, apice subpatentibus, unguibus subbilamellatis.

This, to us, previously unknown Bromeliaceous plant was received at Kew from Dr. Regel, of the Imperial Botanic Garden of St. Petersburg, in 1856, and produced its rich purple, but very much concealed flowers and brilliantly-coloured floral leaves, in a warm stove the following year. It seems quite to accord in habit and in generic character with the *Billbergia cruenta* of Graham, in Bot. Mag. t. 2892, but is far more beautiful in the colour of the corollas, and still more of the floral leaves. It is to be regretted that no locality has been given with the plant, but no doubt it is a native of tropical America, where the species of the family to which it belongs are great ornaments to the trunks of the forest trees, and where they are often intermixed

with equally beautiful Orchidaceous plants. The present species has many points in common with Jacquin's *Tillandsia ligulata* (native of Martinique), of his *Select. Stirp. American.* p. 92. t. 62; still more with the coloured figure of the same plant in the Nuremberg edition of that work, entitled '*Amerikanische Gewächse nach Linneischer Ordnung*,' v. 2. t. 101, which plant Dr. Lindley refers to Plumier's and his genus *Caraguata*; and I should perhaps have referred it to that species, but that Jacquin says the flowers are white, whereas here they are a rich purple. It is the old and decaying flowers only which emit the odour that has suggested the specific name.

DESCR. Our plants grow in a fasciculated manner; the very short *stem* is thicker than one's finger, more or less scarred by the falling away of the lowest radical foliage. *Leaves* copious, imbricated, rather full green, glabrous, about a foot long, an inch or more wide, erecto-patent, ligulate, channelled, spinuloso-serrate at the margin, the apex sharply spinoso-acuminate, very pungent; the base sheathing and subventricose. *Spike* terminal, sessile, three inches long, amentiform, terminal, but so much shorter than the outer foliage, that it could not easily be seen but for the presence of the richly-coloured, erect *floral leaves*, longer, indeed, than the spike, but much shorter than the outer or cauline leaves. *Bracts* large, closely imbricated, greenish-white, tinged with reddish, very broad-ovate, almost sheathing. *Flowers* mostly concealed by the bracts; the apex of the corolla only exserted. *Calyx* of three, sheathing, elongated *sepals*; *petals* with long claws, the spreading dark-purple limbs only exserted, the claws without scales, but with indistinct lamina. *Stamens* included, inserted near the middle of the claws. *Filament* very short; *anther* sagittate, pale-yellow. *Ovary* oblong; *style* filiform, as long as the claws of the petals; stigmas three, spirally twisted.

Fig. 1. Flower. 2. Petal and a stamen. 3. Pistil:—*magnified*. The two other figures (*natural size*) represent a flowering plant; the spike of flowers covered by the foliage; and the plant cut through vertically, showing the position of the flowering-spike in the centre of the brilliantly-coloured floral leaves.



J. N. H. L. L. L.

P. H. B. L. L. L. L. L.

TAB. 6342.

BILLBERGIA PALLESCENS.

Native of Brazil.

Nat. Ord. BROMEIACEÆ.—Tribe ANANASSEÆ.

Genus BILLBERGIA, *Thunb. et Holm. (Schultes fil. in Roem. et Schultes Syst. Veg. vol. vii. p. 1254.)*

BILLBERGIA *pallescens*; acaulis, foliis productis 9–12 suberectis loratis coriaceis 1–2-pedalibus utrinque viridibus tenuissime albido-lepidotis albo-punctatis haud fasciatis, aculeis marginalibus minutissimis, scapo pallido glabro subpedali sursum bracteis 3–4 magnis lanceolatis splendide rubris prædito, floribus 10–20 in spicam laxam cernuam dispositis, omnibus solitariis vel inferioribus interdum 2–3-nis breviter pedicellatis, ovario viridi glabro oblongo crebre sulcato, sepalis lineari-oblongis glabris viridibus apice violaceis ovario longioribus, petalis longe exsertis lingulatis viridibus apice violaceis basi squamatis, staminibus petalis æquilongis, antheris oblongis aurantiacis, stigmatibus exsertis.

B. *pallescens*, *K. Koch et Bouché App. Ind. Semin. Hort. Berol.* anno 1856; *Walp. Ann.* vol. vi. p. 76; *E. Morren in Belg. Hort.* vol. xv. (1865) p. 65, tab. 5-6.

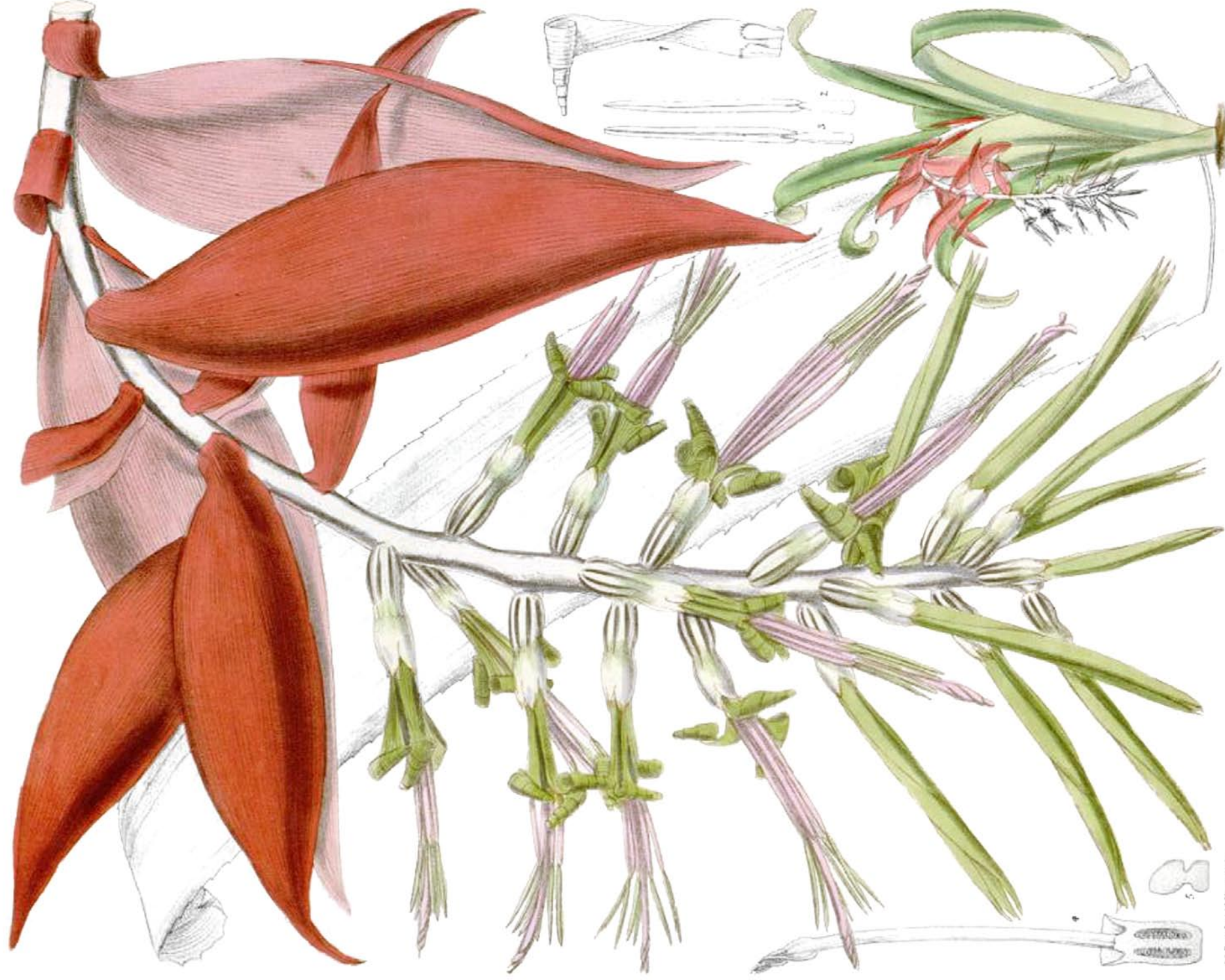
B. *pallida* and *Wiotiana*, *Hort.*

This is a little known, very distinct *Billbergia*, similar in habit to *B. vittata* and *Moreliana*, marked by its many-grooved ovary and large green flowers. It was introduced more than twenty years ago from Central Brazil by M. Libon. Our drawing was made from a specimen that flowered in the Kew collection last November. Our plant differed from that figured in the 'Belgique Horticole' by having a drooping instead of an erect inflorescence and by having all the flowers solitary and none of them subtended by the bright red bracts which add so much to the decorative value of these plants, the highest of these bracts in our specimen being placed below the base of the inflorescence. In spite of these differences we believe the two plants are mere forms of the same species.

FEBRUARY 1ST, 1878.

DESCR. Acaulescent. Produced *leaves* nine to twelve to a tuft, sub-erect, lorate, rigidly coriaceous in texture, the largest reaching a length of one and a half or two feet, one and a half or two inches broad at the middle, dilated to three inches at the clasping base, thinly white lepidote over both surfaces, the face dark green, the back paler and more distinctly striated, decorated with small scattered round white dots, but without any distinct transverse bars, the tip deltoid-cuspidate, the marginal prickles very minute. *Scape* about a foot long, whitish, glabrous, furnished at the top with three or four large erecto-patent, bright red lanceolate bracts, and below these, in the part hidden by the imbricating leaves, a few others which are addressed to it and paler in colour. *Spike* lax, pendulous, three or four inches long, composed of ten to eighteen subsessile flowers. *Ovary* oblong, glabrous, bright green, half an inch long, with numerous narrow parallel vertical ribs and grooves. *Sepals* linear-oblong, horny, three quarters of an inch long, naked, pale green, tipped with violet. *Petals* above an inch longer than the sepals, lingulate, green, tipped with violet, distinctly scaled at the base. *Stamens* as long as the petals; anthers oblong, orange-yellow, a sixth of an inch long. *Stigmas* exserted, a sixth of an inch long, much twisted.—*J. G. Baker.*

Fig. 1, A single petal and stamen; fig. 2, sulcate ovary, style and stigmas:—*natural size.*



TAB. 6670.

BILLBERGIA PORTEANA.

Native of Brazil.

Nat. Ord. BROMELIACEÆ.—Tribe BROMELIÆÆ.

Genus BILLBERGIA, *Thunb.*; (*Benth. et Hook. f. Gen. Pl.* vol. iii. p. 664, *ined.*)

BILLBERGIA (*Helicodea*) *Porteana*; acaulis, foliis paucis loratis rigide coriaceis 3–4-petalibus obscure viridibus purpureo tinctis vittis pluribus transversalibus albidis decoratis, pedunculo farinoso foliis subduplo breviori, bracteis pluribus lanceolatis magnis patulis splendide rubris, floribus pluribus ebracteatis in spicam laxam pendulam dispositis, ovario oblongo farinoso multisulcato, calycis segmentis deltoideis parvis, petalis lanceolatis viridibus basi appendiculatis post anthesin spiraliter tortis, staminibus purpureis, antheris linearibus basifixis, stigmatibus spiraliter convolutis.

B. *Porteana*, *Brong.*; *Beer. Fam. Bromel.* p. 115; *K. Koch in Wochenschrift* 1860, p. 146; *E. Morren in Belg. Hort.* vol. xxvi. (1876), p. 9, tab. 1-3.

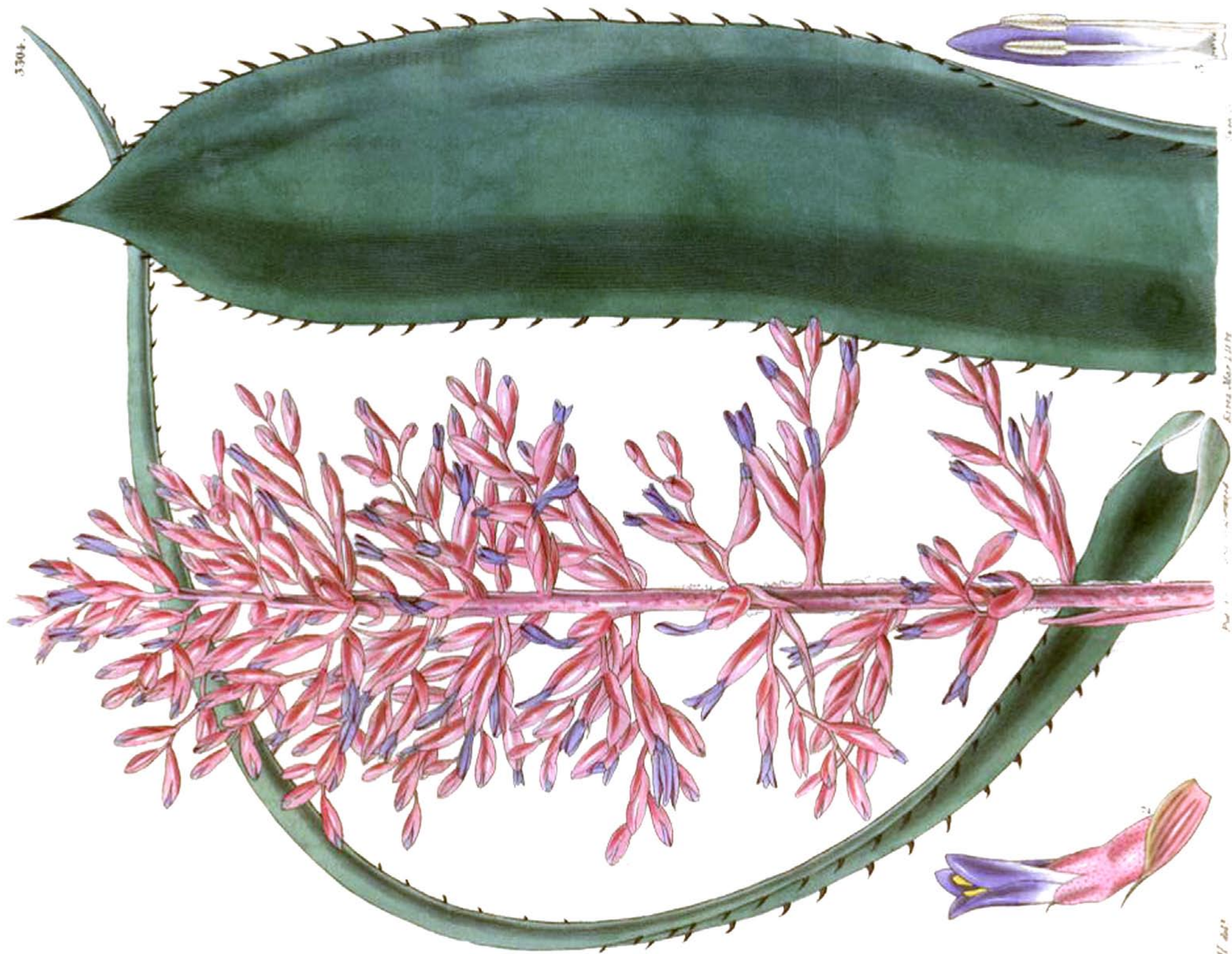
This is one of the most striking of all the cultivated Bromeliaceæ. It belongs to the section of the genus of which the well-known *Billbergia zebrina* (figured in the BOTANICAL MAGAZINE in 1826 at Tab. 2686, under the name of *Bromelia zebrina*, and described by Dean Herbert) is the typical representative. These plants, which Lemaire proposed to separate generically under the name *Helicodea*, are remarkable for the way in which the petals roll up spirally from the top when the flower begins to fade. The present plant was discovered by M. Marius Porte, after whom it is named, in the province of Bahia, in Brazil, in 1849, and was sent by him to M. Morel, of Paris, after whom another very fine species of the genus was named. It was named by M. Adolphe Brongniart, but was first described fully by Dr. Karl Koch. I have seen in the herbarium of the latter the specimen from which this description was made, and a drawing from it is now at Kew. The plant is now widely spread in cultivation, and is universally reckoned one of the most desirable Bro-

FEBRUARY 1ST, 1883.

meliads for a cultivator to obtain. It flowered with us at Kew for the first time in the summer of 1878, and again in June, 1882, when the present drawing was made.

DESCR. Acaulescent. Produced *leaves* five or six in a rosette, erect, lorate, three or four feet long, two or two and a half inches broad at the middle, four inches broad at the base, dull green more or less tinted on the back with claret-purple and marked with irregular transverse bands of white, the marginal prickles deltoid cuspidate, ascending, small and moderately close. *Peduncle* about two feet long, terete, densely farinose, with several large lanceolate bright red spreading bract-leaves. *Flowers* without any special bracts, arranged in a lax drooping simple spike six or eight inches long with a farinose rachis. *Ovary* oblong, half an inch long, densely farinose, with several strong vertical ribs; segments horny, deltoid, not more than half as long as the ovary. *Petals* green, lanceolate, above two inches long, furnished with a pair of minute scales at the base, rolling up spirally from the top when the flower begins to fade. *Filaments* violet-purple, shorter than the petals; anthers linear, basifixed, nearly an inch long. *Ovary* with numerous ovules in a cell; stigmas protruding beyond the anthers, twisting up spirally.—*J. G. Baker.*

Fig. 1. A petal, with its basal appendages; 2, front view of an anther; 3, back view of an anther; 4, pistil, showing a vertical section of the ovary; 5, an ovule:—*all more or less magnified.*



BILLBERGIA PURPUREO-ROSEA. ROSE-PURPLE.

BILLBERGIA.

Class and Order.

HEXANDRIA MONOGYNIA.

(Nat. Ord.—BROMELIACEÆ.)

Generic Character.

Calyx superus. *Petala* convoluta, basi squamosa. *Stamina* basi perianthii inserta. *Stylus* filiformis. *Stigmata* linearia, convoluta. *Capsula* baccata ? *Semina* nuda. *Lindl.*

Specific character and Synonym.

BILLBERGIA *purpureo-rosea*; foliis erecto-patulis ligulatis atro-viridibus brevi acuminatissimis spinoso-dentatis scapo paniculato multifloro brevioribus, exterioribus paucis subulato-canaliculatis, bracteis floralibus solitariis foliolisque calycinis ovatis mucronatis roseis, corollis longe exsertis.

Among the remarkable features in a tropical forest are the numerous and beautiful species of plants which attach themselves parasitically to the trunks of trees, investing the stems and branches, and adorning them with adventitious flowers and foliage. The chief of these are the ORCHIS and BROMELIA, or *Pine-Apple*, families. Our plant belongs to the latter of these, a groupe of vegetables, which not only affords the most richly-coloured blossoms, accompanied by foliage armed with exceedingly annoying spines; but one of the choicest of productions for our desserts:

“Her luscious fruit Ananas rears,
Amidst a coronet of spears ;”

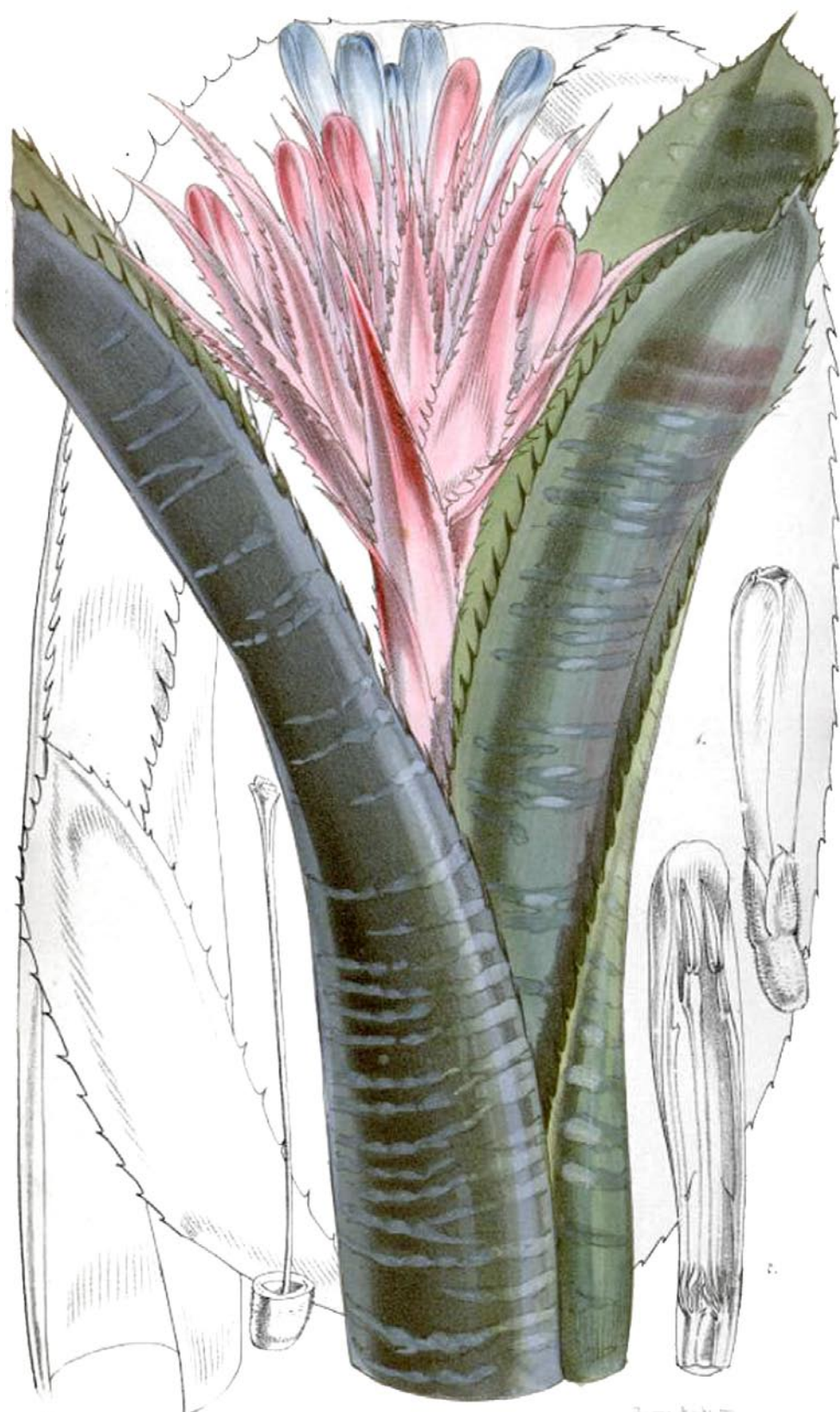
and

and according to the information of our scientific travellers, a truly refreshing beverage in the water that collects in the hollows formed by the inflated leaves, and which is eagerly sought after in times of drought by the natives of those hot countries.

Our present plant will perhaps yield in beauty to few of its tribe. It is a native of Brazil, was introduced by that zealous cultivator, Mrs. ARNOLD HARRISON, and flowered for the first time, I believe, in this country, last year in the Liverpool Botanic Garden; and again in November of the present year (1833), when the specimen here figured was kindly sent by Mr. HENRY SHEPHERD.

DESCR. *Leaves* a foot and a half or more long, ligulate, with a short but very pungent acumination at the extremity, the base very concave, the margin armed with strong dark brown, spinous teeth pointing forward: a few outer *leaves* are shorter than the rest, subulate and channelled: the colour is a. dark green, exhibiting, however, exceedingly minute, farinaceous scales, when seen under the microscope. In the centre of these, from one to three *scapes* arise, which are longer than the leaves, of a reddish-purple colour, shaggy with white loose down, and bearing several oblong, membranaceous *bracteas*, of which, the lower ones are convolute. *Panicle*, or compound *raceme*, eight to ten inches long, bearing numerous rose-coloured *flowers*; the *petals* alone being purple. Each branch bears seven or eight flowers on its zigzag *rachis*, and is subtended by a lanceolate, membranaceous, withered *bractea* or *spatha*. Each flower too, has a convolute, obtuse bractea, rose-coloured, downy, striated and terminated by a sharp, black mucro. *Germen* and *calyx* downy, the latter of three ovate, segments, tipped with a black mucro. *Petals* oblong-lanceolate, very bright and deep purple, with a scale at the base within. Three of the stamens are free, the other three half way combined with the petal.

Fig. 1. Outer Leaf: *nat. size*. 2. Flower. 3. Petal and Stamens: *magnified*.



BILLBERGIA RHODOCYANEA.

Blue and red Billbergia.

Nat. Ord. BROMELIACEÆ.—HEXANDRIA MONOGYNIA.

Gen. Char. (*Vide supra*, TAB. 4756.)

BILLBERGIA *rhodocyanea*; foliis erecto-patulis exterioribus recurvatis omnibus rigidis lingulatis basi dilatato-amplexantibus canaliculatis spinis nigris marginatis minute striolatis glauco-viridibus transversim albo-fasciatis apice spinoso-apiculatis, scapo foliis brevior, thyrsoque capitato multi-bracteatis, bracteis lanceolato-acuminatis spinoso-serratis omnibus roseis subfurfuraceis, alabastris roseis, floribus albis apice purpureo-cæruleis.

BILLBERGIA *rhodocyanea*. *Lemaire in Van Houtte, Flor. der Gewächshsr. v. 3. p. 207.*
Walp. Ann. Bot. v. 1. p. 838.

Received at the Royal Gardens of Kew from Belgium under the above objectionable name—a compound of Greek and Latin. We find no locality given. South America abounds in beautiful plants of this and of allied genera, which are eminently worthy a place in our stoves, and which are neglected by the herbalist because they are so troublesome to dry. The present species has its dark-green leaves elegantly banded with interrupted lines of white; the bracts rose-colour, the rather large corollas white tipped with blue.

DESCR. *Plants* tufted. *Leaves* radical, outer a foot or a foot and a half long, reflexed, inner gradually shorter and more up-right, all ligulate, obtuse, with an acuminate mucro, the sides incurved, so that the leaf is channelled and almost semicylindrical, the colour externally dark green, occasionally tinged with dull purple, banded transversely with slightly wavy interrupted white lines, the apex is free from these bands, upper or inside of the leaves uniform yellow-green; the margin is beset with very sharp, slightly curved, black spinules or prickles, all pointing upwards. *Scape* shorter than the leaves, and almost entirely concealed by

NOVEMBER 1ST, 1855.

them, bracteated, *bracteas* lanceolate, very much acuminate, rose-coloured, farinose, spinuloso-serrated at the margin. Flowers arranged in a capitate *thyrsus*, clothed with numerous imbricating rose-coloured bracteas, resembling those of the scape, concealing the flowers till they are nearly expanded. *Calyx-tube* oval, incorporated with the ovary, yellowish, downy; *limb* of three, rose-coloured, erect, ovate, downy, blunt segments. *Corolla* of three, linear-oblong or spatulate, erect, slightly convolute, very obtuse; *petals* rose-colour in bud, when perfect white, gradually passing into blue at the tips, the margin here and there with a subulate slender tooth. *Scales* at the base of the petals oblong, fringed at the apex. *Stamens* shorter than the petals. *Anthers* linear, acute. *Style* a little shorter than the stamens: *stigma* trifid, segments cuneate.

Fig. 1. Flower. 2. Petal, stamens, and scales. 3. Pistil:—*magnified*.



W. P. H. del. et lith.

Vincent Brooks Imp.

BILLBERGIA SPHACELATA.

Chupon of Chili.

Nat. Ord. BROMELIACEÆ.—HEXANDRIA MONOGYNIA.

Gen. Char. (*Vide supra*, TAB. 5502.)

BILLBERGIA *sphacelata*; caule brevi robusto, foliis numerosis carnosio-congestis 4–5-pedalibus anguste ensiformi-lanceolatis concavis viridibus remotiuscule spinulosis, floribus in capitulum axillare sessile dense congestis, bracteis subulatis spinuloso-serratis medio sphacelatis, sepalis dimidiato-lanceolatis acuminatis integris v. uno latere 1-dentatis, petalis erectis obtusis basi intus 2-tuberculatis, filamentis breviusculis compressis, antheris apiculatis, stigmatibus lineari-subulatis vix tortis.

BROMELIA *sphacelata*. *Ruiz et Pav. Prodr. v. 3. p. 32. Gay, Fl. Chili, v. 6. p. 8.*

GREIGIA *sphacelata*. *Regel, Gartenflora, v. 14. p. 137. t. 474.*

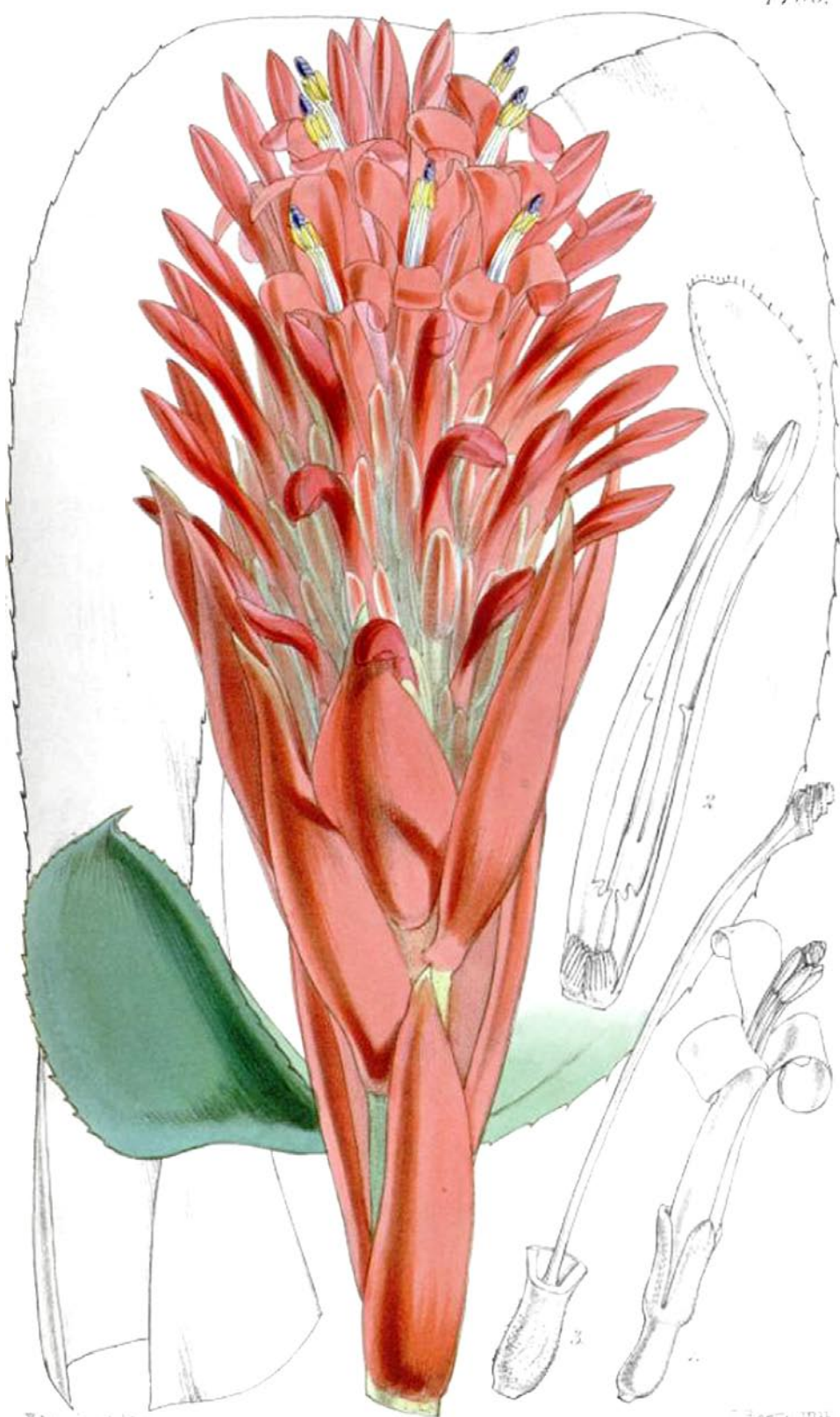
This very handsome Bromeliaceous plant, conspicuous for its magnificent crown of leaves, each from four to five feet long, flowered in the Royal Gardens, Kew, in October, 1866, from specimens sent by Dr. Regel from the Imperial Botanic Gardens of St. Petersburg. Though not altogether corresponding with the *Greigia sphacelata* described and figured by Dr. Regel in the ‘Gartenflora,’ I can hardly doubt its being that plant, both from its origin and habitat. The differences are that Regel’s plant is represented as having obtuse anthers, whereas in the Kew plant the anthers are strongly mucronate. In Ruiz and Pavon’s description the flowers are said to be purple, which is not the case with our plant.

Billbergia sphacelata is a native of temperate Chili, near Concepcion, in lat. 37° S., where it is called Chupon, and the sweet pulpy fruits, which are greedily eaten by children, are called Chupones.

DESCR. *Stem* very short. *Leaves* numerous, densely crowded, bright green and shining, erecto-patent and recurved,
JUNE 1ST, 1867.

four to five feet long, dark-green, narrow-lanceolate ensiform, one inch broad, concave, not keeled nor striate, with rather distant spines on the margins, which are recurved, gradually tapering to the acuminate apex. *Head of flowers* axillary, short, very many-flowered, sunk amongst the leaves near the crown or at the side of the stem, much depressed. *Bracts* longer than the flowers, erect subulate-lanceolate, spinous-ciliate, whitish, with greenish tips, and brown across the middle. *Flowers* pale rose-red, an inch and a half long. *Ovary* smooth. *Sepals* dimidiate-lanceolate, with often a deep tooth on one side. *Corolla* tube rather shorter than the linear-oblong, obtuse lobes, which have a thickened two-lobed scale or two tubercles at the base. *Filaments* subulate, compressed. *Anthers* linear, with a terminal mucro. *Stigmas* three, linear-subulate, hardly twisted.—*J. D. H.*

Fig. 1. Flower. 2. Corolla tube, lobe, and stamens. 3. Germen:—*all slightly magnified.*



BILLBERGIA THYRSOIDEA.

Dense-flowered Billbergia.

Nat. Ord. BROMELIACEÆ.—HEXANDRIA MONOGYNIA.

Gen. Char. *Perigonii* superi sexpartiti laciniae exteriores calycinae, æquales, ecarinatae, erectae vel spiraliter convolutae, aristatae vel muticae, apice hinc oblique dilatatae; interiores petaloideae, exterioribus multo longiores, apice patentes v. erectae, intus basi squamosae v. bicristatae, rarius nudae. *Stamina* 6, epigyna; *filamenta* filiformia, tria plerumque perigonii laciniis interioribus adnata; *antherae* ovatae, dorso affixae, incumbentes v. suberectae. *Ovarium* inferum, triloculare. *Ovula* plurima, e loculorum angulo centrali pendula, anatropa. *Stylus* filiformis *stigmata* 3, petaloidea, convoluta, v. linearia, crispa. *Bacca* subglobosa, trilocularis. *Semina* plurima, nuda vel umbilicum filo gracili appendiculata.—Herbæ *Americanae tropicae*, sæpius super arborum truncis pseudoparasiticae, exsapae v. scapigeræ; foliis ligulatis, linearibus v. ensiformibus, ut plurimum spinuloso-serrulatis; floribus spicatis, paniculatis; spathis floralibus nunc nullis, nunc parvis, v. amplis coloratis. *Endl.*

BILLBERGIA *thyrsoides*; foliis erectis lato-ligulatis obtusis cum acumine æqualiter concavis spinoso-serratis scapo paulo longioribus spathis ovato-lanceolatis acuminatis, spica thyrsoides, floribus densis subebracteatis, germinibus calycibusque albo-farinosis, petalis obtusis calyce multo longioribus.

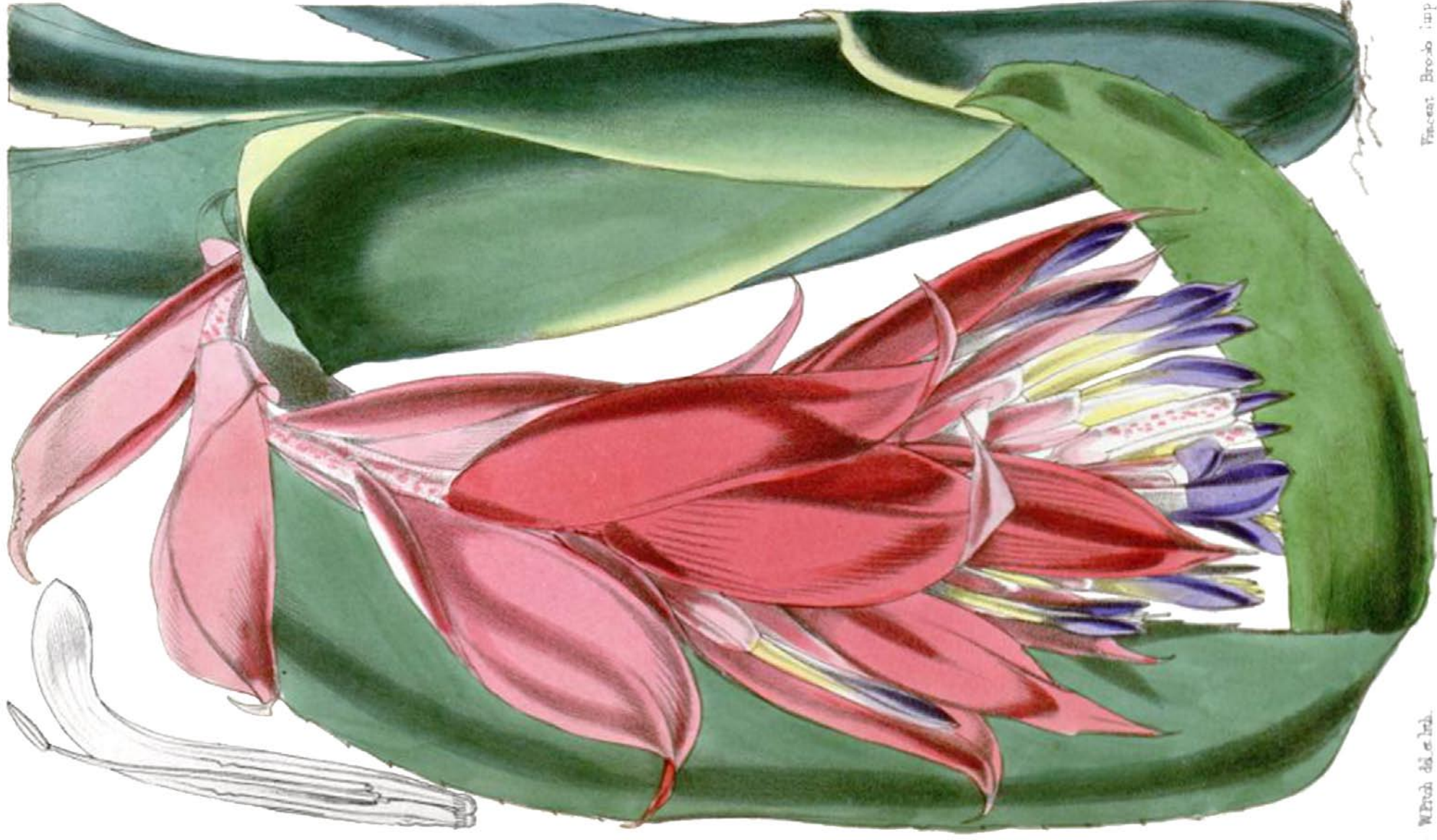
BILLBERGIA *thyrsoides*. *Martius*, in *Fl. Brasil. ined.* *Shultz*, *Syst. Veget.* v. 7. p. 1260.

A richly-coloured and very handsome Bromeliaceous plant, native of Brazil, presented to our garden by Messrs. Henderson, of the Nursery, St. John's Wood, under the name here retained, and which quite accords with the species so called by Martius, which he found growing in rocky places about Rio Janeiro. It is quite different from *Billbergia pyramidalis*, and every other with which we are acquainted. Our readers will observe, that, though the leaves grow erect, or nearly so, on the living plant, our figure of the leaf represents it bent back, to enable us to bring an entire one into the plate. It requires the heat of the stove, and flowered with us in November of the present year 1853.

DESCR. *Leaves* one to two feet long, erect or erecto-patent
DECEMBER 1ST, 1853.

having a slightly reflected curvature, broadly ligulate, of a rather full green on the upper side, paler beneath, when seen under a microscope slightly filamentose or flocculose on the surface, the margin spinuloso-serrate; the base is very convex, somewhat utriculose; the rest convex, or rather canaliculate, plane towards the apex, which latter is obtuse, with a spinulose acumen. *Peduncle* central, shorter than the leaves, terete, imbricated with large, lax, oblong, or lanceolate and acuminate, involute, red *bracteas*, and terminated by a dense thyrsoïd *spike* of many red *flowers*. *Flowers* sessile or nearly so. *Ovary* inferior, oblong, and, as well as the three short, erect lobes of the calyx, clothed with a white powder. *Petals* three, elongated, four times as long as the calyx, subspathulate; the apex reflexed, oblique, and ciliated; the margin below involute, with two teeth near the base, and one higher up on each side. At the base of each petal are so two fimbriated scales. *Stamens* shorter than the petals. *Anthers* yellow. *Style* longer than the stamens, terminated by the three dark-green, spirally twisted lobes of the *stigma*.

Fig. 1. Flower. 2. Petal and stamen. 3. Pistil:—*more or less magnified*.



BILLBERGIA WETHERELLI.

Mr. Wetherell's Billbergia.

Nat. Ord. BROMELIACEÆ.—HEXANDRIA MONOGYNIA.

Gen. Char. (Vide supra, TAB. 4756.)

BILLBERGIA *Wetherelli*; foliis cartilagineis lato-ligulatis obtusis cum acumine basioribus concavis circumvolutis marginibus obscure spinuloso-serratis, scapo foliorum vaginis inclusis, rachi tomentosa spicaque densa exsertis nutantibus, bracteis universalibus amplis coloratis coccineis, petalis (apice purpureis) spathulatis intus versus basin lineis duabus membranaceis subfimbriatis et ad basin squamis duabus fimbriatis.

Dr. Lindley has long ago (Bot. Reg. 1827, under Tab. 1068) observed that it would be difficult to point out a family of plants more interesting from their beauty or singularity than that of *Bromeliaceæ*; and we think the two plants of this family, represented in our present number, serve to strengthen that remark. He further adds, "of which the systematic arrangement has been less carefully studied;" and he has himself given, *l. c.*, a "synopsis of what he considers the essential characters of the genuine genera:" and there, for the first time, we believe, *Billbergia* of Thunberg is clearly defined. To this he has referred several described Brazilian Bromelias, and Martius has added several new ones. None of these however accord with our plant, which we lately received from Bahia by favour of James Wetherell, Esq., H.M. Vice-Consul at that city. The handsome flower-spike was produced in December, 1854. It may rank systematically near *Bromelia iridifolia*, Nees et Mart. (*Billbergia iridifolia*, Lindl. Bot. Reg. f. 1068); differing however remarkably in the foliage, and no less in the nature of the inflorescence. It is an extremely showy species, and easily cultivated in a moist stove and not exposed to too powerful light.

DESCR. *Leaves* all radical, scarcely a foot long in our specimens, broad-ligulate, cartilaginous, glabrous and destitute of minute scales or scurf, moderately channelled, narrower up-

wards, and ending in a short acumen, the margins rather obscurely spinuloso-serrate, the serratures pointing upwards; the bases are much dilated, concave, and sheathed, as is common to many *Bromeliaceæ*: the outer leaves are more or less recurved. *Scape* central, mostly concealed by the sheathing bases of the leaves; the rest of it, bearing the flowers and highly-coloured bracts, is exserted and drooping, bent down suddenly towards the ground: the *rachis* stout, clothed with whitish dense wool. Universal *bracteas*, the lower ones flowerless, all of them large, at first imbricated, then more or less patent, two to three inches long, scarlet, sharply acuminate, obsoletely striated, entire. *Flowers* forming a thick thyrsoïd *spike*, only the upper ones destitute of the large bracteas, and scarcely exserted beyond the bracteas of the inferior flowers. *Calyx* superior, of three, erect, membranaceous, white, oblong sepals, slightly tinged with red. *Petals* about half as long again as the sepals, erect, spathulate, the *claw* white, the *limb* purple, moderately patent; within the claw are two longitudinal plicæ, which meet over the filament, and are partly lacinated; and there are besides two fimbriated *scales* at the very base of the claw. *Stamens* all free.

Fig. 1. Petal, with the scales and stamen:—*magnified*.



TAB. 6137.

BOUCEROSIA MAROCCANA.

Native of Morocco.

Nat. Ord. ASCLEPIADEÆ.—Tribe STAPELIEÆ.

Genus BOUCEROSIA, *Wight & Arn.*; (*Benth. & Hook. f Gen. Plant.*,
vol. ii. ined.).

BOUCEROSIA *maroccana*; ramis tetragonis marginibus angulato sinuatis, foliis
trulliformibus acutis, corollæ lobis nudis tubo intus hirsuto, coronæ sta-
mineæ processibus 5 incurvis gynostegio incumbentibus cum 10 erectis
geminatim collateralibus capitatis alternantibus.

A near ally of *B. Gussoniana* (*Apteranthes Gussoniana*,
Tab. nost. 5087), of Algeria, and so like it that I long hesi-
tated before deciding upon figuring and describing it as new;
besides, however, the differences of habit, which are more
easily seen than described, there are so many other differ-
ential characters that, taken altogether, it is impossible to
unite this with the Algerian plant. The angles of the stem,
instead of being faintly undulate, are longitudinally divided
into broadly triangular lobes, each tipped with a minute leaf,
which instead of being sessile adnate and upcurved, is trow-
el-shaped, contracted at the base, and usually deflexed. The
flower, are fewer, on longer pedicels; the corolla-lobes want
the long cilia, being quite naked, and are shorter, not so re-
flexed, and of a clearer purple, with fewer yellow bars, and
the base of the tube inside is densely velvety. But the greatest
difference is in the staminal crown, which in *B. Gussoniana*
presents five capitate incurved processes, each with a knob on
each side at the base; but in this the five incurved processes
are inflexed and incumbent upon the stigma, whilst the lat-
eral knobs are elevated on erect stalks. How far any or all
these characters are variable can only be known by a long
and careful study. The probability of their proving constant
is rendered more probable by the wide difference of habit of
the two plants, the *A. Gussoniana* being a native of saline

DECEMBER 1ST, 1874.

situations in Sicily, Spain, and the Algerine coast; whilst *A. maroccana* inhabits the much lower latitudes of Mogado in Marocco. Here it was found on the rocky islet of Mogador by Messrs. Maw, Ball, and myself, and also elsewhere along the coast near the town, and introduced into Kew, where it flowered in July.

The genus *Apteranthes* is merged in *Boucerosia* (itself possibly referrible to *Piaranthus*) by Bentham in the forthcoming volume of the *Genera Plantarum*.

DESCR. *Branches* prostrate, six to ten inches long, by about one broad, 4-sided, the sides deeply sunk, the angles cut into broad subtriangular lobes, with an acute sinus, one-half to three-quarter inch long. *Leaves* on the angular summits of the lobes of the stem-angles, one-tenth inch long, trowel-shaped, contracted at the base, ciliolate. *Flowers* two to six in an umbel, pedicel one-quarter inch long, and subulate calyx-teeth green. *Corolla* one-half to two-thirds inch diameter, spreading, 5-lobed to about the middle; lobes triangular, subacute, quite glabrous, pale green outside, dark red-purple within streaked transversely towards the base and around the cup with yellow; tube densely villous. *Crown* of 5 inflexed processes that cover the staminal crown, and 10 erect capitate processes in pairs between the inflexed ones.—*J.D.H.*

Fig. 1, Leaf; 2, outside, and 3, inside view of corolla; 4, gynostegium; 5, pollen-masses:—*all magnified*.



BRACHYSTELMA BARBERIÆ.

Mrs. Barber's Brachystelma.

Nat. Ord. ASCLEPIADEÆ.—PENTANDRIA DIGYNIA.

Gen. Char. Calyx 5-phyllus. *Corolla* campanulata, sinubus angulatis. *Corona staminea* 5-phylla, foliolis gynostegio medio adnatis, 3-lobis, lobis antheris oppositis simplicibus longioribusque ad basin dentibus binis introrsum plus minus pilosis stipatis. *Gynostegium* inclusum. *Antheræ* simplices, membrana destitute. *Masse pollinis* erectæ, supra basin affixæ, cum margine pellucido quasi operculatæ. *Stigma* muticum. *Folliculi* graciles, læves, erecti, pedunculo recto. *Semina* comosa.—Herbæ Austro-Africanæ, perennes, radice tuberosa, eduli.

BRACHYSTELMA *Barberiæ*; caule brevissimo, foliis lineari-oblongis acutis, floribus numerosissimis in capitulum amplum globosum congestis, corollæ limbo explanato, lobis caudatis elongatis apicibus arcuatis cohærentibus.

BRACHYSTELMA *Barberiæ*. *Hort. mss.*

The 'Botanical Magazine' claims the privilege of figuring, from time to time, plants which are not as yet in cultivation in England, but which are so remarkable for their interest or beauty as to be objects of great and special interest, and to which public attention should hence be drawn. Amongst such subjects few can rival the subject of the present Plate, of which an admirable coloured drawing, made by our accomplished correspondent Mrs. Barber, of The Highlands, Graham's Town, was transmitted to me for our late mutual friend Dr. Harvey, of Dublin, who had already named the plant from dried specimens. On hearing of Dr. Harvey's decease, Mrs. Barber transferred the drawing to me; and though unable to offer any botanical description of the parts of the flower, I have not hesitated to publish it, both in justice to Dr. Harvey's memory and to his wish that it should bear the name of the amiable person and zealous botanist to whose exertions we owe our knowledge of it.

The genus *Brachystelma* is a rather large South-African
NOVEMBER 1ST, 1866.

one; the species grow in dry places, and form tuberous roots that are eaten by the natives. Some of the species have erect and others twining stems, but none hitherto described approach this in habit, whilst the coherent Ceropogia-like tips of the corolla-lobes is an unusual character in the genus. It was discovered by Mr. Bowker (Mrs. Barber's brother) in the valleys of the Isomo river, in Kaffirland.

DESCR. *Root* a depressed tuber, as large as a turnip. *Stem* very short. *Leaves* spreading, three to four inches long, linear-oblong, acute. *Flowers* collected into a sessile, dense, globose capitulum, four to five inches in diameter, dingy-purple, speckled with yellow in the disk. *Corolla-limb* one inch broad, slightly concave, shortly five-lobed; *lobes* triangular, terminating in slender tails one inch long, which arch inwards and cohere over the centre of the flower.—*J. D. H.*



W.J.H. del.^o

Pub. by S. Curtis, Walworth, Sep. 1850.

Swan. 56

(3016)

BRACHYSTELMA CRISPUM. WAVED-LEAVED
BRACHYSTELMA.

Class and Order.

PENTANDRIA DIGYNIA.

(Nat. Ord.—ASCLEPIADEÆ.)

Generic Character.

Corolla campanulata, sinubus angulatis. *Columna* inclusa. *Corona* monophylla, 5-fida; lobis antheris oppositis, dorso simplicibus. *Antheræ* absque membrana apiculari. *Massæ pollinis* erectæ, basi insertæ. *Brown MSS.*

Specific Character and Synonym.

BRACHYSTELMA * *crispum*; foliis elliptico-lanceolatis, corollæ laciniis tubo duplo longioribus, pedunculis sæpius aggregatis.

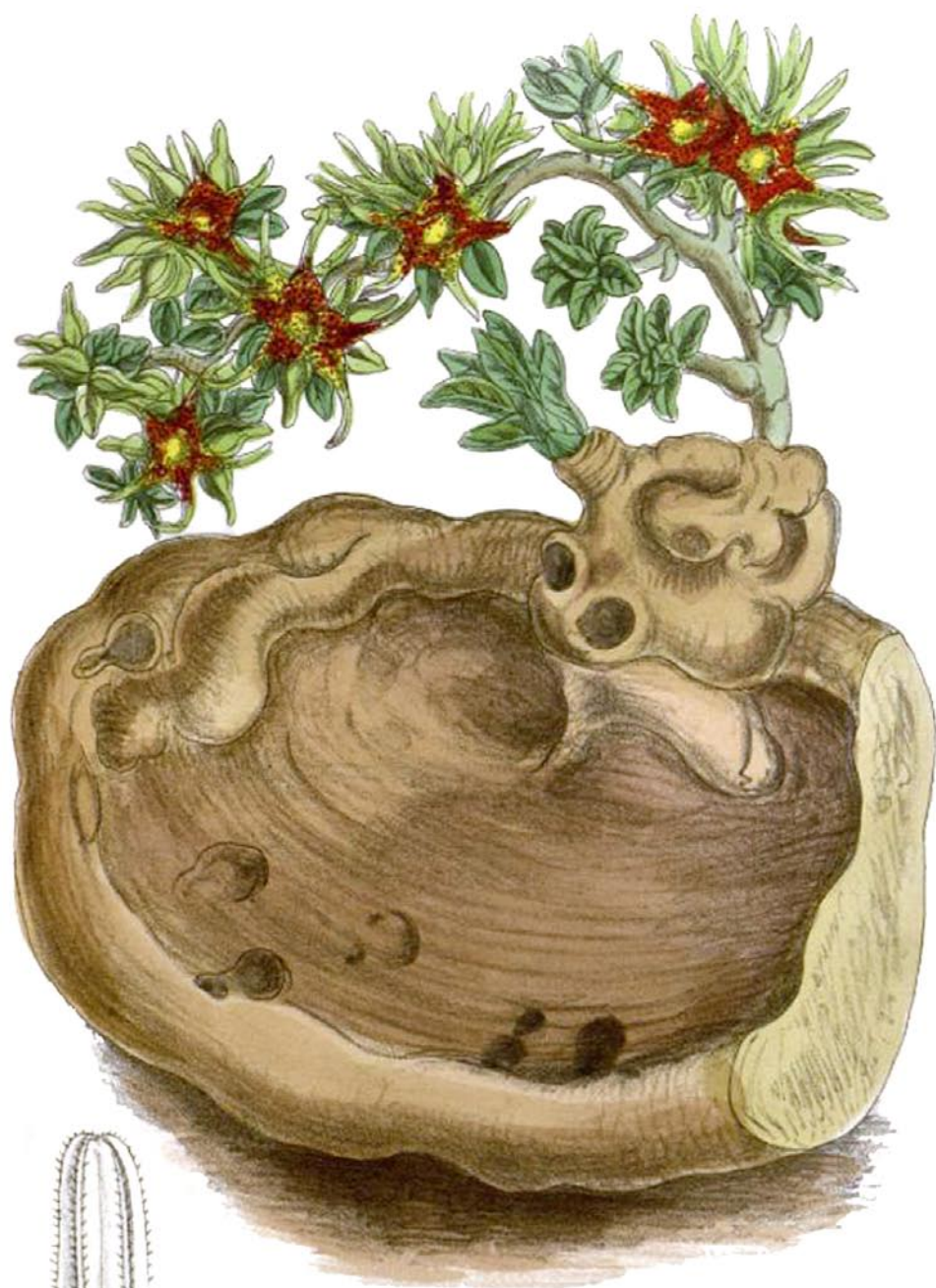
BRACHYSTELMA *crispum*. *Graham, Descr. of Rare Plants, in Edin. Phil. Journ.*

DESCR. *Tuber* four inches in diameter, round, flattened, slightly depressed, having in the centre a rugged crown or neck, divided at top and permanent, about half or three quarters of an inch high, from which the stems spring when the plant begins to vegetate. *Stems* several, slightly flattened, ascending, much branched, forming a dense, round tuft, (in the specimen described six inches high and ten inches broad,) covered with short, glandular pubescence. *Leaves* opposite, decussating, elliptico-lanceolate, dark green above, paler beneath, covered on both sides with glandular

From *βραχυσ*, short, and *σελμα*, a crown, in allusion to the short *corona* of the flower.

glandular pubescence, crisped, on short petioles, with a strong middle rib, and a few veins prominent beneath: at the flowers, the pairs occasionally approach, so as to give the appearance of a four-leaved verticil. *Peduncles* nearly three-fourths of an inch long, simple, rarely solitary, generally aggregated, situated on the side of the stem, between the leaves, two or more frequently agglutinated together in the luxuriant specimen described. *Bracteas* small, awl-shaped, at the base of the peduncles. *Calyx* small, five-parted, pubescent, segments awl-shaped, and very much resembling the bracteas. *Corolla* monopetalous, pubescent within, naked without; *limb* five-parted, plicate, occasionally twisted, forming to the bud an angular, blunt beak, about an inch long, of the same colour as the back of the leaves, segments afterwards spreading wide, their edges revolute, upper surface dark olive-green, *faux* devoid of pubescence, yellow, especially within-side, crowded with deep purplish-brown, oblong, transverse spots, which on the outside are fewer and more rounded; *tube* campanulate; crown deep-purple, included, monophyllous, with five teeth, which are connivent over the *stigma*; there is an emarginate, erect border on the outside of each, and between them five pits, over which are situated the truncated *stamens*, each having two distinct *pollen-masses*, and a depending, central, double beak. *Germen* of two smooth, green, conical *follicles*; each with many ovules attached to their inner side. *Stigma* common to both follicles, large, flat, white.

Several bulbs of this plant were collected in Southern Africa, by Mr. BOWIE, and sent, with many others, in the spring of 1829, to Mr. NEILL, in whose stove at Canon-mills they flowered in May, 1830. The species approaches *BRACHYSTEMA spathulatum*, Bot. Reg. t. 1113, but it seems to me evidently distinct. Mr. NEILL has received another plant, which has not yet blossomed, from the same quarter, of which the leaves are flat and elliptico-spathulate, while the bulb is somewhat elevated in the centre. It seems probable that it will prove to be the *B. spathulatum*. In the natural groupe of plants to which *BRACHYSTEMA* belongs, there are many fetid species, but I am not acquainted with any whose smell is so decidedly stercoreous as the present individual. GRAHAM.



MS. del. JN Fitch lith.

Vincent Brooks, Day & Son Lith.

L. Reeve & Co London

TAB. 8817.

BRACHYSTELMA FOETIDUM

South Africa.

ASCLEPIADACEÆ. Tribe CEROPEGIÆ.

BACHRYSTELMA, *R. Br.; Benth. et Hook. f. Gen. Plant.* vol. ii. p. 781.

Brachystelma foetidum, *Schlechter in Engl. Jahrb.* vol. xx. Beibl. 51, p. 52 *et in Journ. Bot.* 1897, p. 292; *N. E. Brown in Dyer, Fl. Cap.* vol. iv. sect. 1, p. 840; species *B. crispo*, *Grah. et B. tuberoso*, *R. Br. affinis*, sed ab illa corollae lobis brevioribus glabris vel rarius ad faciem anteriorem puberulis, ab hac corollae lobis multo longioribus differt.

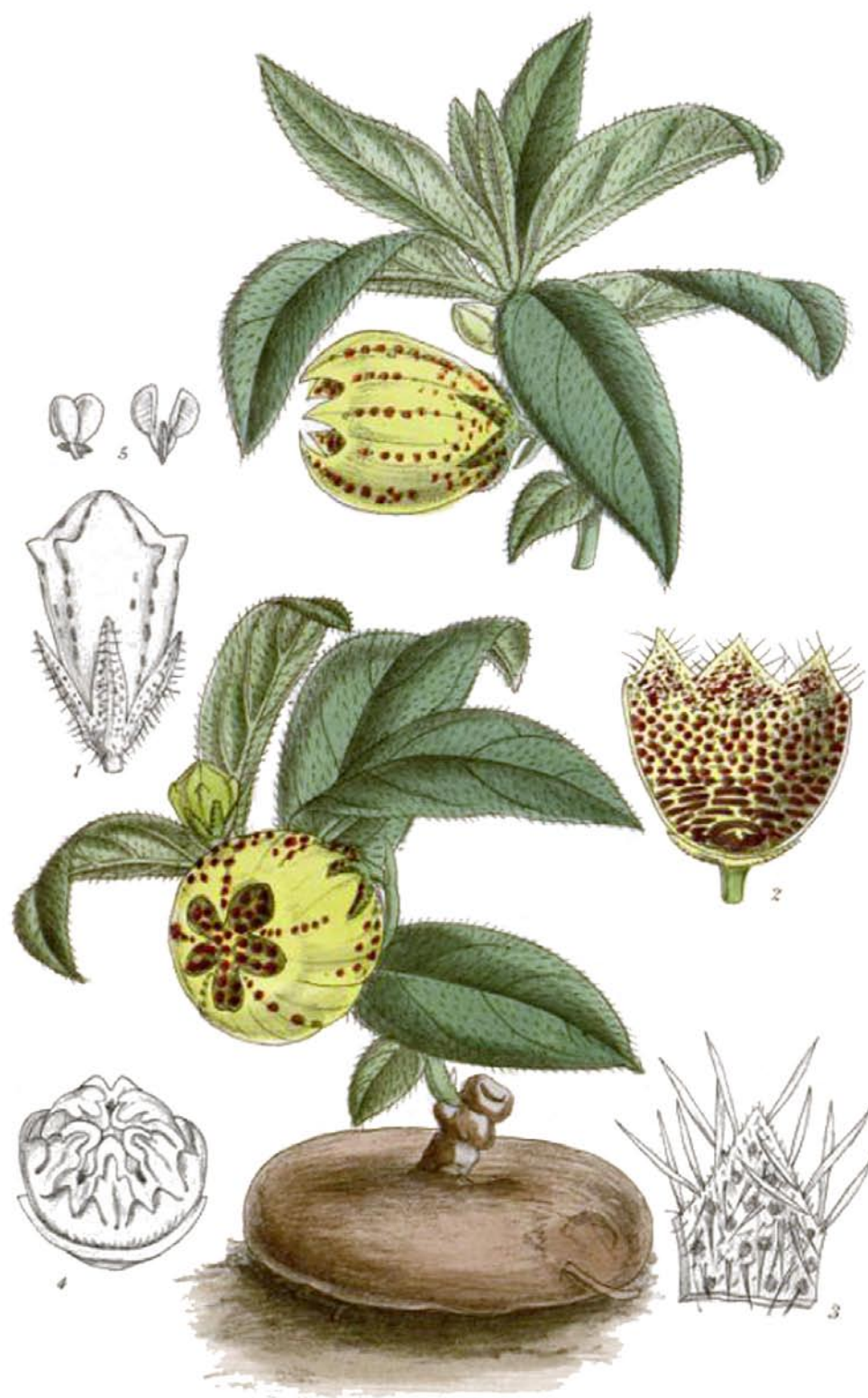
Herba perennis caudice tuberoso. *Tuber* complanatus, usque ad 13 cm. diametro. *Caules* solitarii vel plures, adscendentes vel patentés, ramosi, 7–15 cm. longi, pilis brevibus patentibus vestiti. *Folia* opposita, patentia, lineari-lanceolata, lanceolata vel elliptica, rarius obovata, apice acuta vel obtusa, margine interdum undulata, basi in petiolum brevem angustata, utrinque villosa vel supra glabra, 1–5 cm. longa, 3–16 mm. lata. *Flores* axillares, solitarii vel saepius in fasciculis 2–6-floris dispositi, foetidissimi. *Pedicelli* 5–8 mm. longi, pubescentes. *Sepala* lanceolata, acuta, 3–5 longa, pubescentia. *Corolla* 2·5–5 cm. diametro, extra pubescens vel subglabrescens, intus glabra vel rarius puberula, atropurpurea et lutea, lobis superne viridescentibus tubo verruculis fuscis notato; tubus campanulatus, 6–8 mm. longus; lobi liberi, patentés, lineares vel lanceolati e basi deltoidea, acuti, 1–2·5 cm. longi, 1–1·5 mm. lati, breviter ciliati. *Corona exterior* cupuliformis, columnam staminalem subaequans, 10-dentata, saccula antheris alternantia formans; dentes erecti, deltoidei, vix 1 mm. longi. *Coronae interioris* lobi lineare, obtusi, usque ad 1 mm. longi, ad dorsa antherarum incumbentes. *Folliculi* geminati vel solitarii, tereti-fusifformes, obtuse rostrati, pubescentes, 6–8 cm. longi, 6–8 mm. crassi.—*B. Rehmanii*, *Schlechter in Bull. Herb. Boiss.* vol. iv. p. 449.—S. A. SKAN.

This *Brachystelma* was first discovered near the Mooi River, TRANSVAAL, by Joseph Burke, some time between 1840 and 1842. It has since been collected in several other localities in the Transvaal, also in the Orange River Colony, Basutoland and Zululand. Tubers of the plant, collected near Pretoria, were sent to Kew in January, 1917, by Mr. A. M. Bottomley of the Division of Botany, Pretoria, and from one of these the material for the figure was obtained in the following May. It is an interesting and curious plant, but scarcely ornamental, and its flowers, as is often the case in the family, have a very disagreeable odour. The tubers are eaten by the natives, JULY–SEPTEMBER, 1919.

and are known as Hottentot's bread: in the raw state they have a bitter taste. Several species of *Brachystelma* are, or have been, in cultivation; these include *B. tuberosum*, R. Br. (t. 2343), *B. crispum*, Grah. (t. 3016), *B. Barberiae*, Harv. (t. 5607), and *B. oianthum*, Schlechter (t. 8670), which have been figured in this Magazine. The genus comprises about seventy-four species, of which forty-five are natives of South Africa, and nineteen of Tropical Africa; there are several in India, one in Siam, and one in New Guinea. At Kew *B. foetidum* is cultivated in a dry tropical house devoted to succulent plants, where it flowered for the first time in August, 1918, when the figure now given was prepared.

DESCRIPTION.—*Herb* with a perennial tuberous rootstock. *Tuber* flattened, up to 5 in. across. *Stems* solitary or several, ascending or spreading, branched, 3–6 in. long, clothed with short spreading hairs. *Leaves* opposite, spreading, linear-lanceolate, lanceolate or elliptic, rarely obovate, tip acute or obtuse, margin sometimes undulate, narrowed at the base into a short petiole, villous on both surfaces or glabrous above, $\frac{1}{3}$ –2 in. long, $\frac{1}{8}$ – $\frac{3}{5}$ in. wide. *Flowers* axillary, solitary or often in clusters of 2–6, odour very disagreeable. *Pedicels* $\frac{1}{5}$ – $\frac{1}{3}$ in. long, pubescent. *Sepals* lanceolate, acute, $\frac{1}{8}$ – $\frac{1}{5}$ in. long, pubescent. *orolla* 1–2 in. across, pubescent to nearly glabrous outside, glabrous or rarely puberulous within, limb dark-purple and yellow with the lobes greenish upwards, and the tube beset with tawny minute warts; tube campanulate, $\frac{1}{4}$ – $\frac{1}{3}$ in. long; lobes free, spreading, linear or lanceolate from a deltoid base; acute, $\frac{2}{5}$ –1 in. long, $\frac{1}{24}$ – $\frac{1}{16}$ in. wide, shortly ciliate. *Outer corona* cup-shaped, about as long as the staminal column, 10-toothed, so as to form small sacs alternating with the anthers; the teeth themselves erect, deltoid, very short. *Inner corona* with linear, blunt, very short lobes incumbent on the backs of the anthers. *Follicles* geminate or solitary, fusiform-terete, bluntly beaked, pubescent, $2\frac{1}{4}$ – $3\frac{1}{4}$ in. long, $\frac{1}{4}$ – $\frac{1}{3}$ in. wide.

TAB. 8817.—Fig. 1, flower-bud; 2, corona and gynostegium; 3, pollinia:—*all enlarged*.



BRACHYSTELMA OIANTHUM

South Africa

ASCLEPIADACEAE. Tribe CEROPEGIEAE.

BRACHYSTELMA, *R. Br.; Benth. et Hook. f. Gen. Plant.* vol. ii. p. 781.

Brachystelma oianthum, *Schlechter in Engl. Jahrb.* vol. xx. Beibl. 51, p. 53; *N. E. Br. in Dyer, Fl. Cap.* vol. iv. sect. i. p. 888; species *B. panulato*, *N. E. Br.*, valde affinis, sed corolla pilis longis albis vel atropurpureis instructa, lobis haud ciliatis distinguitur.

Herba tuberosa; tuber planum, circiter 5 cm. diametro; caulis erectu, simplex vel sparse ramosus, pubescens. *Folia* lanceolata, elliptio-lanceolata vel elliptico-oblanceolata, acuta, 1.25–5 cm. longa, fere 2 cm. lata, breviter petiolata, minute ciliata, plus minusve pubescentia. *Flores* solitarii, nuntantes vel horizontales. *Calycis* segmenti lanceolati vel ovato-lanceolati, acuti, 5 mm. longi, sparse pubescentes. *Corolla* ovoideo-campanulata, breviter 5-loba, extra glabra, viridi-flava, maculis atropurpureis instructa; tubus ad 2.4 cm. longus (saepissime brevior) et 2.5 cm. diametro, intus pilis longis albis vel atropurpureis instructus; lobi 5, deltoidei, acuti, circiter 5 mm. longi et 5 mm. lati, longe ciliati. *Coronae* segmenti quinque, in cupulam connati, trilobi, lobis lateralibus (exterioribus) 10 deltoideis obtusis lobis intermediis (interioribus) ad antherarum dorsa adpressis, ea haud excedentibus.—W. B. TURRILL.

The *Brachystelma* here figured is a native of the Orange River Colony, which has been in cultivation in England since 1912, when it was presented to Kew by Dr. R. Marloth, Cape Town. During the period which has elapsed since it was received all its parts have increased in size to a considerable extent. The leaves are now longer and wider and less hirsute than they were during its first season, and the flowers, produced for the first time in May, 1915, are much larger than those in any of the wild specimens from its native habitat in the Kew collection or in those on which Dr. Schlechter based his Original account of *B. oianthum*. The species thrives well in a warm greenhouse under the conditions as to soil and water which are suitable for the South African species of *Stapelia*. The species of the genus *Brachystelma* display considerable variety in the shape of the corolla. The majority are without a distinct corolla-tube, the flower then being saucer-shaped or quite flat. The other

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extreme is exemplified in *B. oianthum*, with its ovoid-campanulate or subglobose corolla. Between the two limits an almost unbroken series of intermediate conditions may be met with. In the species figured the structure of the corona is peculiar: the lobes are in two series, but unite to form a cupule apparently composed of five broad 3-lobed segments. What appear to be the lateral lobes of each segment really represent the constituents of a 10-lobed outer corona, while the five intermediate lobes represent the inner corona, the members of which are opposite to and closely applied to the back of the corresponding anthers. The ten lateral lobes are contiguous in pairs which alternate with the intermediate lobes, and may thus owe their origin to fission of five outer corona-lobes alternate with the five inner ones.

DESCRIPTION.—*Herb*; tuber flat, about 2 in. across; stem erect, simple or sparingly branched, pubescent. *Leaves*, lanceolate, elliptic-lanceolate or elliptic-ob lanceolate, acute, $\frac{1}{2}$ –2 in. long, nearly $\frac{3}{4}$ in. wide, short-petioled, minutely ciliate, more or less pubescent. *Flowers* solitary, nodding or horizontal. *Calyx* 5-lobed; segments lanceolate or ovate-lanceolate, acute, $\frac{1}{5}$ in. long, sparingly pubescent. *Corolla* ovoid-campanulate, shortly 5-lobed, glabrous outside, greenish-yellow with dark purple spots; tube sometimes nearly 1 in. long, usually shorter, 1 in. wide, beset inside with long white or dark purple hairs lobes 5, deltoid, acute, about $\frac{1}{5}$ in. long and wide, long-ciliate. *Corona* of 5 segments united in a cupule, each segment 3-lobed, the 10 lateral lobes representing an outer series deltoid obtuse, the 5 intermediate lobes representing an inner series adpressed to the backs of, and not longer than, the anthers.

Fig. 1. bud; 2, corolla in longitudinal section; 3, a single corona-lobe; 4, corona and gynostegium; 5, pollen-masses;—all enlarged except 2, which is of natural size.



BRYOPHYLLUM CALYGINUM. PENDULOUS-
FLOWERED BRYOPHYLLUM.

Class and Order.

OCTANDRIA MONOGYNIA.

Generic Character.

Calyx 1-phyllus; cylindricus. *Corolla* tubulosa, limbo 4-fido erecto. *Filam.* æqualia basi corollæ inferta. *Germina* 4. *Nectaria* squama 4, unicuique germini unica.

OBS. *A Kalanchoe Adansoni* differt præcipue filamentis æqualibus, neque serie binaria dispositis.

Specific Names and Synonyms.

BRYOPHYLLUM *calycinum*. Salisb. Parad. Lond. 3.

COTYLEDON *calyculata*. Solander Mss. apud Banks.

COTYLEDON *pinnata*; foliis quinato-pinnatis, foliolis obovatis crenatis: crenis filamentis-barbatis, floribus longis pendulis. Lam. Enc. 2. p. 141?

CALANCHOE *pinnata*. Persoon Syn. 1. p. 446?

CRASSUVIA *floripendula*. Commerson Mss.?

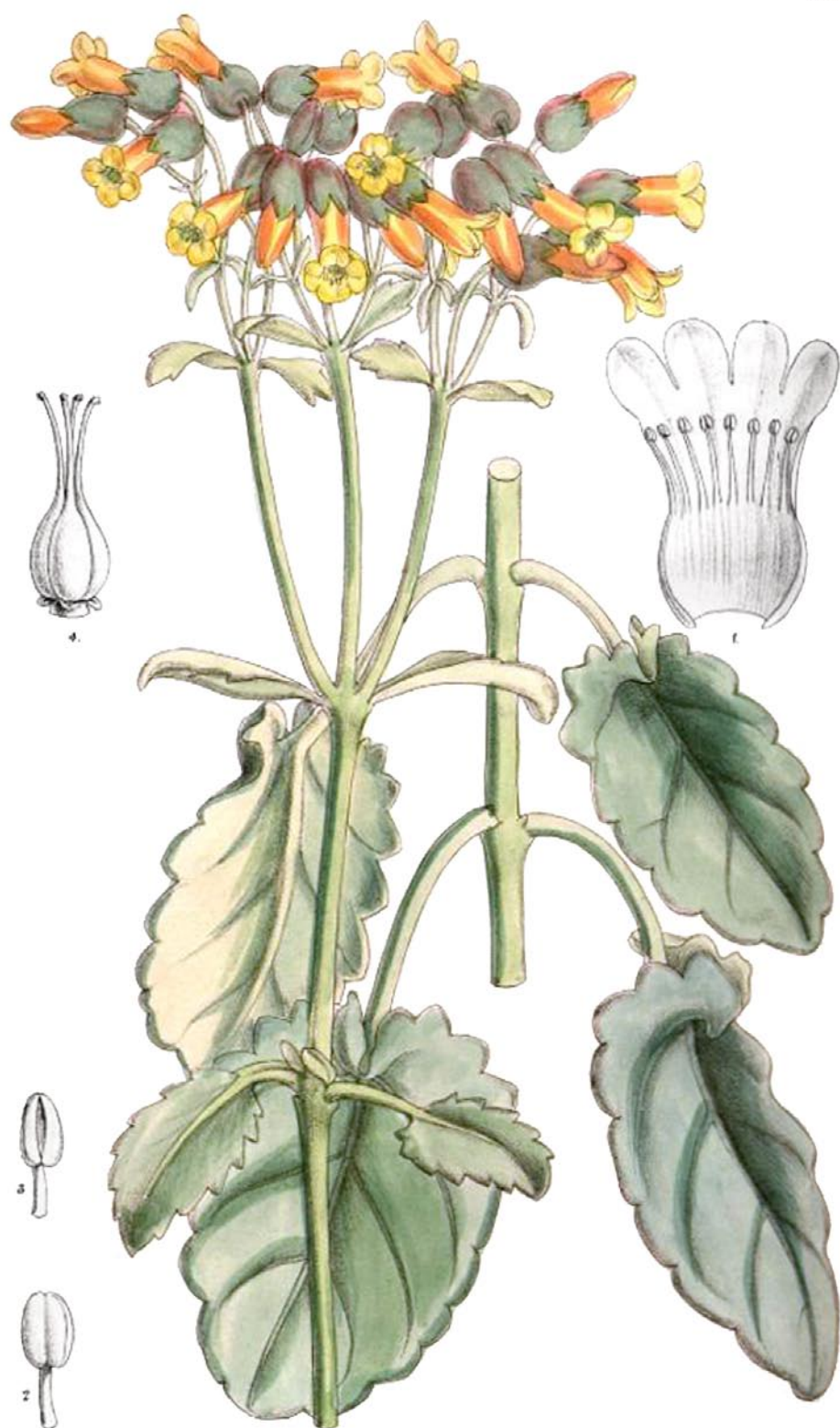
DESC. *Stem* erect, shrubby, knotted by the vestiges of the fallen leaf-stalks; ash-coloured at the lower part and reddish upwards, with raised oblong whitish spots. *Leaves* upon long spotted footstalks, which continue to grow and become recurved after the leaf is decayed, opposite, fleshy, simple, ternate, or even pinnate, ovate, crenate, veined on the upper surface, paler beneath. *Flowers* pendulous in terminal compound panicles: *pedicles* divaricate, curved at the extremity. *Corolla* about twice the length of the calyx, one-petaled, somewhat contracted upwards, and obscurely four-sided; *limb* divided into 4 lanceolate *laciniæ*, suffused with red. *Nectary* 4 tongue-shaped scales inserted into the base of the germens, which are four, oblong, terminating in as many *styles* equalling the stamens. *Filaments* 8, inserted into the base of the corolla, in one equal row, the length of the tube.

The

The name was happily conceived by Mr. SALISBURY, from $\beta\rho\upsilon\omega$ to germinate & $\phi\upsilon\lambda\lambda\omicron\nu$ a leaf. For this plant possesses the singular property of germinating from the dark spot observable at the base of every indentation in the margin of the leaf, not whilst growing, but as it decays. Thus, in attempting to dry a specimen, little germinating bulbs were produced in abundance, though there was no appearance of any before the plant was deposited between papers. We know of no other species which will come under this genus; the *COTYLEDON pinnata* of Lamarck being probably the same; and his two varieties differing in nothing but that in the one the crenatures of the leaves had germinated and put forth radicles, while the other had not.

Native of the Moluccas, and brought into England from the Calcutta garden by Dr. ROXBURGH. Requires a moderate stove. Flowers in May. Propagated by the crenatures of the leaves or by cuttings.

We were favoured with the fine plant from which our drawing was taken, by Mr. BARR, of Ball's-Pond, Islington.



TAB. 7856.
BRYOPHYLLUM CRENATUM.

Native of Cenral Madagascar.

Nat. Ord. CRASSULACEÆ.

Genus BRYOPHYLLUM, *Salisb.*; (*Benth. & Hook. f Gen. Plant. vol. i. p. 658*).

BRYOPHYLLUM *crenatum*; glaberrimum, caule 3–5-pedale erecto v. basi decumbente basi simpliciusculo terete apice trichotome ramoso, internodiis longiusculis, foliis oppositis crassis oblongis v. late ovato-oblongis basi cordatis v. biauriculatis auriculis incurvi sinuato-crenatis supra læte viridibus subtus pallidis, costa subtus valida, nervis utrinque 3–5, floralibus minoribus linearibus, petiolis validis 1–2 poll. longis teretibus, cymis terminalibus corymbiformibus laxifloris, floribus nutantibus rubro-aurantiacis, pedicellis gracilibus dactylis $\frac{1}{4}$ – $\frac{3}{4}$ poll. longis, calyce inflato $\frac{1}{3}$ poll. diam. globoso 4-dentato dentibus deltoideis basi rotundato v. intruso, corollæ tubo $\frac{2}{3}$ poll. longo subcylindræo medio paullo constricto, lobis 4 brevibus late oblongis apice rotundatis uniseriatis staminibus 8-medio tubo insertis, antheris inclusis minutis oblongis, disci glandulis minutis, ovarii carpellis in stylos loculis subæquilongis graciles attenuatis.

B. crenatum, *Baker, in Journ. Linn. Soc. vol. xx. (1884) p. 139.*

Of *Bryophyllum*, *Salisb.*, only five species are known, all, no doubt, indigenous in Africa or its islands only, though one of them, the well-known *B. calycinum*, *Salisb.* (t. 1409), has, through its property of propagating itself by fragments of its succulent leaves, become so widely spread in the tropics of both hemispheres, as to have been regarded as a native of both America and Asia. The filaments vary in length in the genus, in *B. calycinum* and *B. crenatum* the anthers do not project beyond the mouth. of the corolla, which they do in *B. proliferum*, *Bojer* (t. 5147).

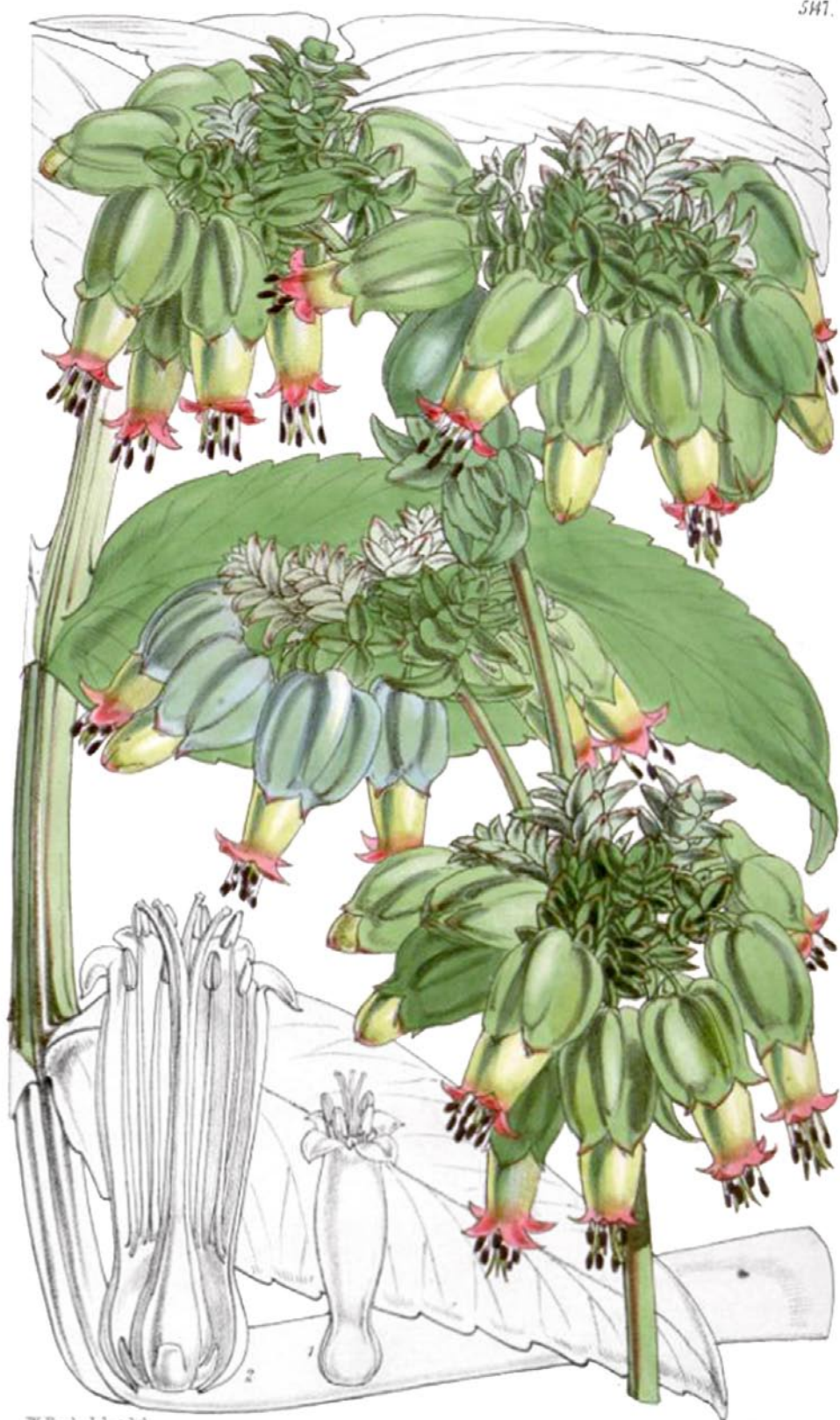
B. crenatum is a native of Central Madagascar, where it was first collected by Mr. Lyall, who sent specimens to Sir W. Hooker sixty years ago. More recently it has been collected by the Rev. R. Baron, in 1881–2, and by Mr. Scott Elliot at Angalampena. A living plant was presented to the Royal Gardens, Kew, in 1900, by Messrs. Vilmorin, which is now five feet high, in the Succulent House.

Descr.—*Stem* stout, erect, cylindric, trichotomously branched above. *Leaves* opposite, long-petioled, succulent,

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two and a half to three inches long, oblong or ovate-oblong, sinuate-crenate, tip rounded, base cordate, biauriculed by the usually incurved basal lobes, bright green, with three to five nerves on each side of the midrib which is very stout beneath; floral leaves small, linear; petiole one to two inches long, stout, terete. *Cymes* corymbiform, lax-flowered; pedicels slender, decurved. *Flowers* nodding, orange-red, about two-thirds of an inch long. *Calyx* inflated, globose, four-toothed, teeth deltoid. *Corolla-tube* twice as long as the calyx, or more, lobes four, oblong, tips rounded. *Stamens* unisereate; anthers included. *Disk-glands* minute. *Styles* slender, about as long as the cells of the carpels.—*J. D. H.*

Fig. 1, corolla laid open; 2 and 3, anthers; 4, pistil:—*all enlarged.*



BRYOPHYLLUM PROLIFERUM.

Proliferous Bryophyllum.

Nat. Ord. CRASSULACEÆ.—OCTANDRIA MONOGYNIA.

Gen. Char. Calyx inflatus, ante florescentiam vesicularis, vix ad medium 4-fidus, lobis 4-valvatis. Corolla gamopetala, hypogyna; tubo longo, cylindraceo, basi obtuse tetragono; lobis 4, ovato-triangularibus, acutis. Stamina 8, tubi basi adnata. Glandulæ 4, oblongæ.—Suffrutices carnosi, erecti, ramosi, glabri. Folia opposita, crassa, petiolata; alia impari-pinnata; nunc segmentis 1–2-jugis, interdum nullis, terminali maximo interdum solitario, pinnis ovatis oblongis crenatis, crenis (in *B. calycino*) punctum opacum in plantulam facile evolutam gerentibus. Cymæ paniculate, terminales, nunc proliferæ. Flores e flavo rubentes. Calyx fere *Silene inflatæ*. De Cand.

BRYOPHYLLUM *proliferum*; elatum, caule tetragono, foliis pinnatis, rachi late alata, pinnis oppositis oblongo-lanceolatis sessilibus crenato-serratis, cymis terminalibus proliferis, floribus nutantibus, calyce tetragono, staminibus styloque exsertis.

BRYOPHYLLUM *proliferum*. *Bowie, MS.*

If the two genera, *Kalanchoe*, Adans., and *Bryophyllum*, Salisb., are to be retained, the present singular plant belongs to the latter genus, indicated by the monophyllous inflated calyx; and the species, though possessed of little beauty to recommend it, is nevertheless very peculiar, and deserving of place in a greenhouse to those who cultivate succulent plants. The stout, and at the base almost woody stems, attain, with us, a height of 10–12 feet, and when the copious corymbs of flowers appear, they are disfigured by the quantity of proliferous shoots springing from the bases of the pedicels; whereas, as is well known, a similar power of reproduction exists in the crenatures of the leaves of *Bryophyllum calycinum*, especially when the leaves come in contact with the soil. It is a native of Madagascar, but certainly neither under *Bryophyllum* nor under *Kalanchoe* is there anything described like it. There is a *Kalanchoe Delagoensis*, as its specific name implies, of Delagoa Bay, a good deal to the east of Natal, but all that is said of it is (Eckl. et Zeyh. Enum.

Pl. Afr. Austr. Extratropica, p. 305), "Exemplum et mutilum cel. Commodore Owen ad Delagoa Bay legit, et nobiscum communicavit." Our plants were raised from cuttings, sent from the Cape of Good Hope, and which he received as dried specimens for the herbarium, by Mr. Bowie. The species requires a warm and dry house for its successful cultivation.

DESCR. *Stem* ten to twelve feet high, moderately branched, rounded and terete, and almost woody below; the *branches* acutely tetragonal, very succulent, as is the whole plant. *Leaves* a foot to a foot and a half long, opposite, impari-pinnate, with about five opposite pairs of leaflets, which are sessile, subdecurrent, oblong-lanceolate, obtuse, crenate. *Rachis* very thick, deeply furrowed in front. *Inflorescence* terminal, in compound, pedunculated, proliferous *cymes*: sometimes all are proliferous, at other times the pedicels bear drooping flowers, one and a half inch long. *Calyx* large, inflated, bluntly tetragonal, with four, short, acute lobes. *Corolla* longer than the calyx, urceolato-cylindrical. *Limb* four-lobed. *Stamens* exserted, alternately longer. *Ovaria* with a blunt scale or gland at the base of each.

Fig. 1. Corolla and stamen. 2. The same, laid open:-magnified.

7014.



M. S. del. C. H. P. 1844.

V. R. 1844. 1844.

Vincent, Brooks Day & Son. 1844.

TAB. 7014.

CARAGUATA ANDREANA.

Native of New Granada.

Nat. Ord. BROMELIACEÆ.—Tribe TILLANDSIEÆ.

Genus CARAGUATA, *Lindl.*; (*Benth. et Hook. f. Gen. Pl.* vol. iii. p. 668.)

CARAGUATA *Andreana*; acaulis, foliis 20–30 ensiformibus pallide viridibus glabris flaccidis recurvatis, pedunculo rubro foliis bracteiformibus lanceolatis viridibus imbricatis, floribus 2–3-nis in paniculam laxam subspicatam dispositis, bracteis floralibus ovatis acutis rubris, calyce luteo sepalis oblongo-lanceolatis imbricatis, corollæ luteæ tubo cylindrico segmentis lingulatis tubo æquilongis, staminibus prope tubi oram insertis, stylo apice tricuspidato.

C. *Andreana*. *E. Morren in Rev. Hort.* 1881, p. 247, fig. 61; 1886, 276, with coloured figure; *Baker in Synops. Tilland.* p. 5.

The Caraguatas inhabit the West Indies and the mountains of Central America and the Andes. They closely resemble the Tillandsias, but the petals are united in a tube instead of being distinct down to the base. There are about a dozen species now known, which differ widely in size and inflorescence. The present plant was discovered by M. Edouard André, after whom it was named by Professor E. Morren, during his travels in South America in 1876 on the Cordillera of Pasto, in New Granada, and was introduced by him into cultivation. Our drawing was made from a plant purchased from M. Bruant of Poitiers, which flowered at Kew last April.

DESCR. Acaulescent. *Leaves* twenty or thirty in a dense rosette, ensiform, thin, and pliable in texture, pale green, without any bands or lepidote scales, a foot and a half or two feet long, an inch and a half broad above the dilated base. *Peduncle* about a foot long, bright red; bract-leaves lanceolate, green, erect, imbricated. *Panicle* about a foot long, lax, subspicate, consisting of about ten clusters of two or three flowers, each subtended by a large green lanceolate branch-bract; flower-bracts ovate, acute, bright red, under an inch long. *Calyx* yellow, above an inch long; sepals oblong-lanceolate. *Corolla* bright yellow,

SEPTEMBER 1ST, 1888.

two inches long; tube cylindrical; segments lingulate, as long as the tube, not scaled at the base. *Stamens* nearly as long as the segments, inserted at the throat of the corolla-tube. *Ovary* ampullæform; style long, tricuspidate at the apex.—*J. G. Baker.*

Fig. 1, Portion of corolla, with stamens; 2, front view of anther ; 3, back view of anther; 4, pistil:-all enlarged.



TAB. 7137.
CARAGUATA ANGUSTIFOLIA.
Native of New Granada.

Nat. Ord. BROMELIACEÆ.—Tribe TILLANDSIÆ.

Genus CARAGUATA, *Lindl.*; (*Benth. et Hook. f. Gen. Pl.* vol. iii. p. 668.)

CARAGUATA *angustifolia*; acaulis, cuspitosa, foliis pluribus linearibus acuminatis obscure lepidotis facie canaliculatis, pedunculo brevi foliis reductis occulto, floribus in spicam brevem densam multifariam aggregatis, bracteis splendide rubris inferioribus ovato-lanceolatis centralibus oblongis, calycis segmentis parvis oblongis, corollæ lutea tubo cylindrico, segmentis brevibus oblongis obtusis, staminibus ad corollæ faucem uniseriatis filamentis brevissimis, antheris primum connatis demum liberis.

C. angustifolia, *Baker in Gard. Chron.* N. S. vol. xxii. p. 616; *Handb. Bromel.* p. 144.

Guzmania Bulliana, *André in Rev. Hort.* 1886, p. 324.

G. angustifolia, *Wittm. in Engler Jahrb.* vol. xi. p. 62.

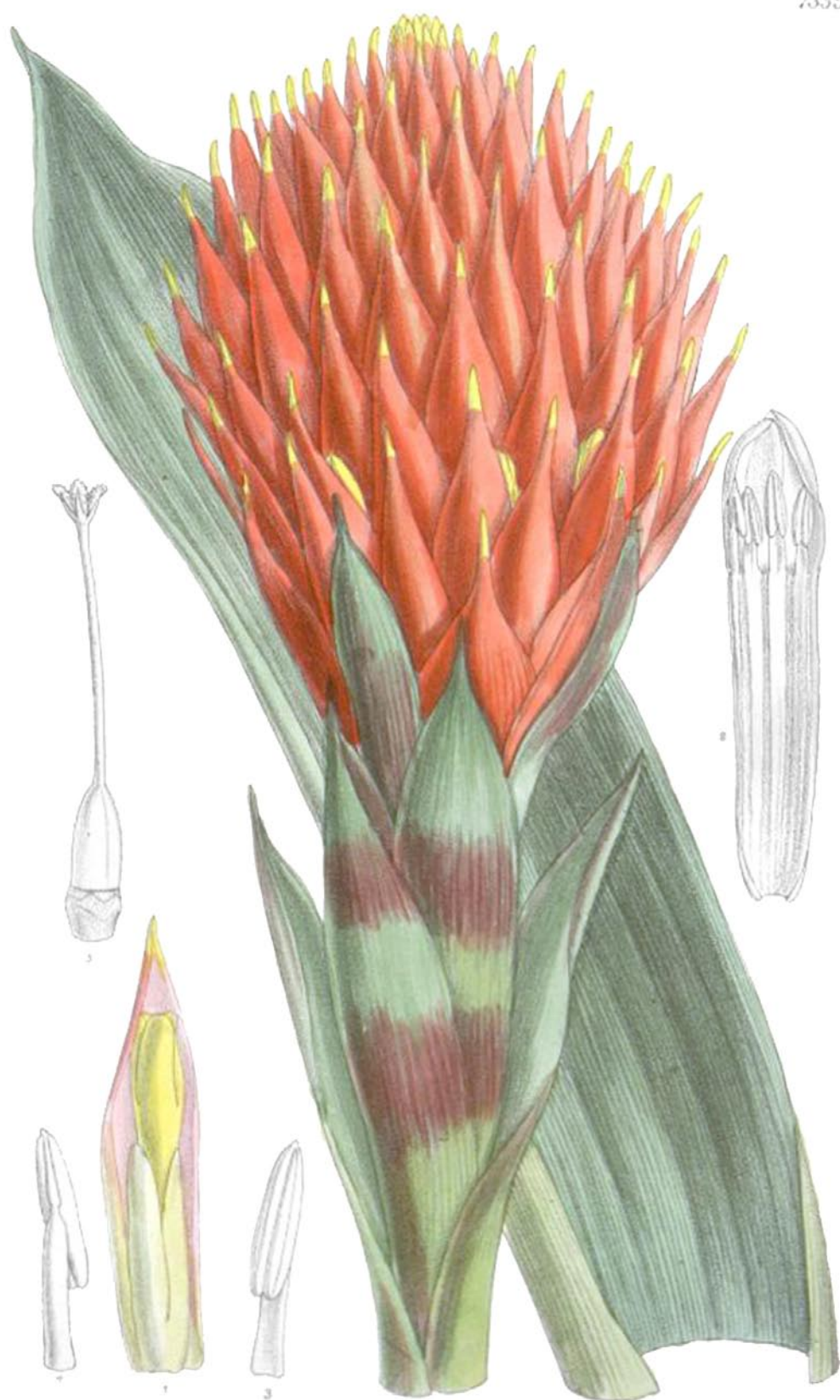
This is a very interesting and distinct dwarf Bromeliad. Both the bracts and flowers are brightly coloured, and keep so for a long time, and it differs greatly in habit from all its allies by its numerous narrow long-pointed leaves. Botanically it forms a link of connection between *Caraguata* and *Guzmania*, which only differ from one another by the stamens of the latter being permanently syngeneis. It was first flowered at Kew in 1884, the plant being presented by Messrs. Veitch, and gathered by Kalbreyer whilst collecting for them in New Granada. Our drawing was made from a plant that flowered at Kew this summer. It has also been collected by Lehmann at a height of four thousand feet above sea-level on the banks of the Rio Dagua.

DESCR. Acaulescent, densely tufted. *Leaves* thirty or more in a rosette, linear acuminate from an ovate base, half a foot long, half an inch broad at the base of the blade, dull green, obscurely lepidote, channelled down the face. *Peduncle* three or four inches long, quite hidden by the crowded stem-leaves. *Spike* dense, simple, multifarious; bracts large, bright scarlet, the outer ovate-lanceolate,

SEPTEMBER 1ST, 1890.

acuminate, the inner oblong. *Calyx* (including ovary) half an inch long; segments oblong, obtuse. *Corolla* lemon-yellow, two or two and a half inches long; tube cylindrical; segments oblong, obtuse. *Stamens* inserted in a single series at the throat of the corolla-tube; filaments very short; anthers connate in bud, free in the expanded flower. *Ovary* ampullæform; style long; stigmas ovate, not twisted.—*J. G. Baker.*

Fig. 1, A flower complete, natural size; 2, top of corolla, cut open; 3, an anther, seen from the back; 4, top of style and stigmas :-all enlarged.



TAB. 7359.

CARAGUATA CONIFERA.

Native of Ecuador.

Nat. Ord. BROMELIACEÆ.—Tribe TILLANDSIEÆ.

Genus CARAGUATA, *Lindl.*; (*Benth. et Hook. f. Gen. Pl.* vol. iii. p. 668.)

CARAGUATA *conifera*; acaulis, foliis 15–20 dense rosulatis lanceolatis chartaceis viridibus immaculatis parce lepidotis 2–3-pedalibus basi dilatatis apice deltoide acuminato, pedunculo valido crebre foliato foliis longiori, floribus in capitulum densum simplicem globosum aggregatis, bracteis primariis unifloris ovato-lanceolatis dense imbricatis splendide rubris apice sæpe luteo maculatis, calycis tubo brevi lobis oblongis, corollæ luteæ tubo subcylindrico calyce longiori lobis oblongis, staminibus lobis brevioribus, filamentis brevissimis applanatis, stylo elongato ramis stigmatosis undulatis.

Caraguata conifera, *André Enum. Bromel.* p. 5; *Bromel Andr.* p. 47, tab. 15.
Baker Handb. Bromel. p. 14.,

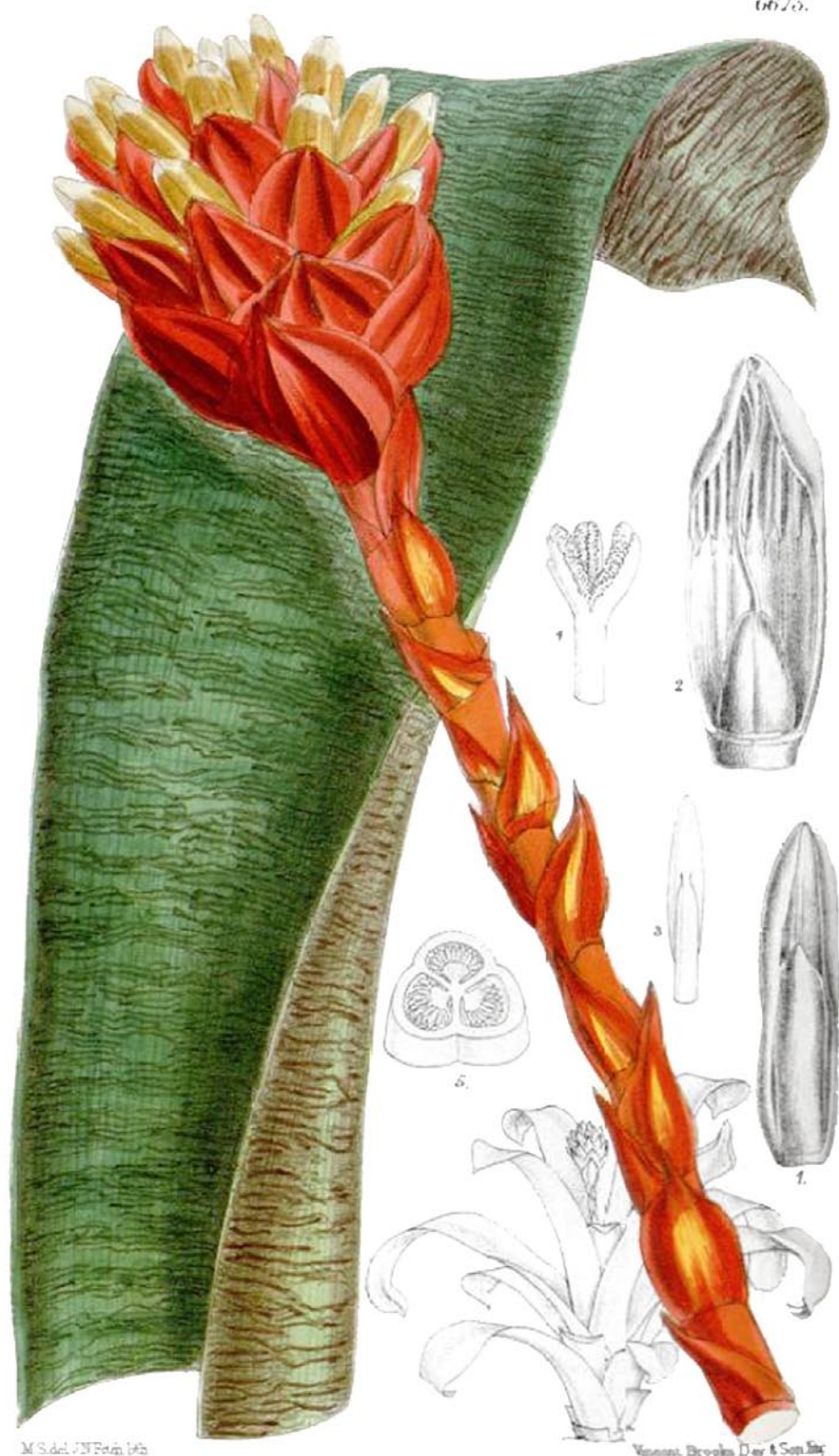
The genus *Caraguata* has entirely the habit of *Tillandsia*, from which it differs only by its gamopetalous corolla. At the date of the publication of the third volume of Bentham and Hooker's "Genera Plantarum" (1883) only five species were known, now the number has been raised to about forty, principally by discoveries made by our excellent correspondent, Monsieur Edouard André in his explorations of New Grenada and Ecuador. The Royal Gardens are indebted to him for the specimen of the present plant, from which our drawing has been made. It was discovered in 1882 by Monsieur H. Poortman near Zamora, in Southern Ecuador. It is nearly allied to the old well-known West Indian *C. lingulata*, on which Lindley founded the genus, but is much larger in all its parts, with persistent bracts of the most brilliant scarlet. It was sent by M. André to Kew in August, 1893, and was drawn when in full flower in September.

Descr.-Acaulescent. *Leaves* about twenty in a dense rosette, lanceolate, chartaceous, bright green, very slightly lepidote, two or three feet long, two inches broad at the middle, dilated at the base, narrowed to a deltoid acuminate point.

JUNE 1ST, 1894,

nate tip. *Peduncle* stiffly erect, central, overtopping the leaves, hidden by the imbricated ascending lanceolate bract- leaves. *Inflorescence* a dense, simple, globose capitulum, about three inches in diameter; bracts densely imbricated, ovate-lanceolate, erect, one-flowered, about two inches long, bright scarlet, often tipped with yellow. *Calyx* an inch long; tube short; lobes oblong. *Corolla* pale yellow; tube subcylindrical, longer than the calyx; lobes oblong. *Stamens* inserted at the throat of the corolla-tube, shorter than the lobes; filaments very short, flattened. *Ovary* ovoid; style long, with three short, much undulated stigmatose branches. *Capsule* cylindrical, apiculate, an inch and a half long.—*J. G. Baker.*

Fig. 1, Bract and flower; 2, vertical section of corolla, with stamens; 3, front view of anther; 4, back view of anther; 5, pistil:—*all more or less enlarged.*



M. S. del. J. N. F. pin. 1875

Vincent, Brooks, Day & Son. Eng.

TAB. 6675.

CARAGUATA MUSAICA.

Native of New Granada.

Nat. Ord. BROMELIACEÆ.—Tribe TILLANDSIEÆ.

Genus CARAGUATA, *Lindl.*; (*Benth. et Hook. f. Gen. Pl.* vol. iii. p. 668, ined.)

CARAGUATA (Massangea) *musaica*; acaulis, foliis 12–20 loratis integris cuspidatis utrinque fasciis copiosis vermiformibus transversalibus præditis, facie pallide viridibus fasciis saturate viridibus, dorso purpureo-viridibus fasciis purpurascens, pedunculo splendide rubro bracteis multis parvis deltoideis scariois concoloribus prædito, floribus in capitulum globosum aggregatis, bracteis magnis deltoideis splendide rubris, sepalis lanceolatis cartilagineis glabris luteo tinctis, corolla albida calyce brevioris segmentis oblongis tubo æquilongis, staminibus inclusis ad tubi faucem insertis uniseriatis, ovario ovoideo stylo elongato.

C. *musaica*, *André in Ill. Hort.* vol. xxiv. (1877), p. 27, t. 268.

MASSANGEA *musaica*, *E. Morren. in Belg. Hort.* vol. xxvii. (1877), p. 199, t. 8, 9

TILLANDSIA *musaica*, *Hort. Linden.*; *J. Moore in Florist* (1875), p. 15, *cum icone*.

VRIESEA *musaica*, *Cogn. et Marchand in Dallier Plantes feuill. ornam.* vol. ii. t. 39.

BILLBERGIA *musaica*, *Regel in Gartenfl.* (1874), p. 378, *cum icone*.

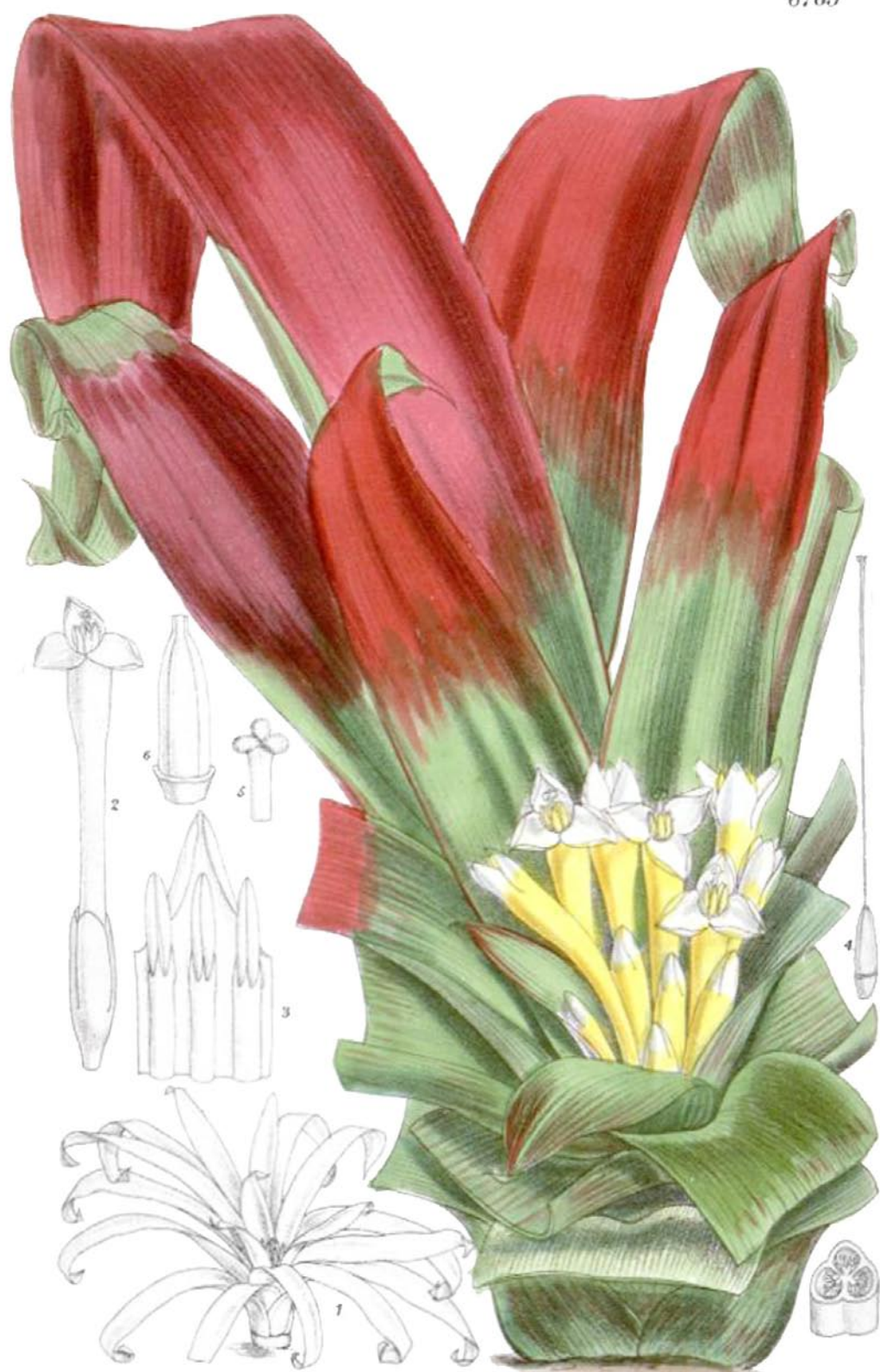
This fine Bromeliad is now widely spread in cultivation, and at once attracts attention by the remarkable marking of its leaves. It was sent in 1871 to Linden, by Gustave Wallis, from a wood, at an altitude of 3000 feet above sea-level, near Teorama, in the neighbourhood of Ocana, in New Granada, and was received in the same year direct by Mr. Wm. Bull. It was first exhibited by Mr. Bull in flower to the Royal Horticultural Society in April, 1875. Professor Morren, who gives a full and excellent account of its history and characters in the volume of the *Belgique Horticole* above cited, has founded upon it his genus *Massangea*, which principally differs from *Caraguata*, as represented by the well-known *C. ligulata* of Lindley, and *C. Zahnii*, by the corolla being much smaller than the calyx.

MARCH 1ST, 1883.

Our drawing was made from a specimen that flowered at Kew in October, 1882.

DESCR. Acaulescent. *Leaves* lorate, twelve to twenty in a rosette, rather cartilaginous in texture, obtuse with a deltoid cusp, one and a half or two feet long, two or three inches broad at the middle, marked with copious slender transverse wavy vermiform lines on both surfaces, those of the face dark green on a pale green groundwork, those of the back bright purple on a purplish-green glossy ground. *Peduncle* central, a foot long, bright scarlet down the base, furnished with numerous small scariose deltoid bract-leaves of the same colour. *Flowers* about twenty, aggregated into a globose capitulum, each subtended by a large bright red deltoid bract. *Calyx* of three, lanceolate, cartilaginous, sepals above an inch long, glabrous, free to the base, tinged yellow. *Corolla* white, much shorter than the calyx, with an oblong tube and three oblong segments. *Stamens* inserted in a single row at the throat of the corolla-tube; filaments very short; anthers linear. *Ovary* ovoid; style elongated; stigmas three, oblong, not spirally twisted.—*J. G. Baker.*

Fig. 1, Calyx cut open so as to show the corolla; 2, corolla cut open so as to show the stamens and pistil; 3, a stamen, viewed from the back; 4, summit of the style, with the three stigmas; 5, horizontal section of ovary:—*all more or less enlarged.*



M.S. del. T.N. Peck. lith.

Vincent Brooks Day & Son Imp.

TAB. 6765.

CARAGUATA SANGUINEA.

Native of New Granada.

Nat. Ord. BROMELIACEÆ.—Tribe TILLANDSIEÆ.

Genus CARAGUATA, *Lindl.*; (*Benth. et Hook. f. Gen. Pl.* vol. iii. p. 668.)

CARAGUATA *sanguinea*; acaulis, foliis lanceolatis dense rosulatis falcatis chartaceis basi paulo dilatatis deorsum viridibus sursum sanguineo tinctis, exterioribus pedalis, interioribus sensim brevioribus, floribus multis in foliorum centro nidulantibus breviter pedicellatis, bracteis oblongis obtusis membranaceis, calycis segmentis oblongis erectis brevibus obtusis basi coalitis, corolla tubo elongato clavato stramineo segmentis brevibus ovatis obtusis patulis, staminibus ad tubi faucem insertis uniseriatis filamentis brevissimis antheris lineari-oblongis basi sagittatis, ovario ampullæformi stylo elongato apice stigmatoso breviter tricuspidato, fructu capsulari oblongo.

C. *sanguinea*, *André in Rev. Hort.* 1883, p. 468, cum icone.

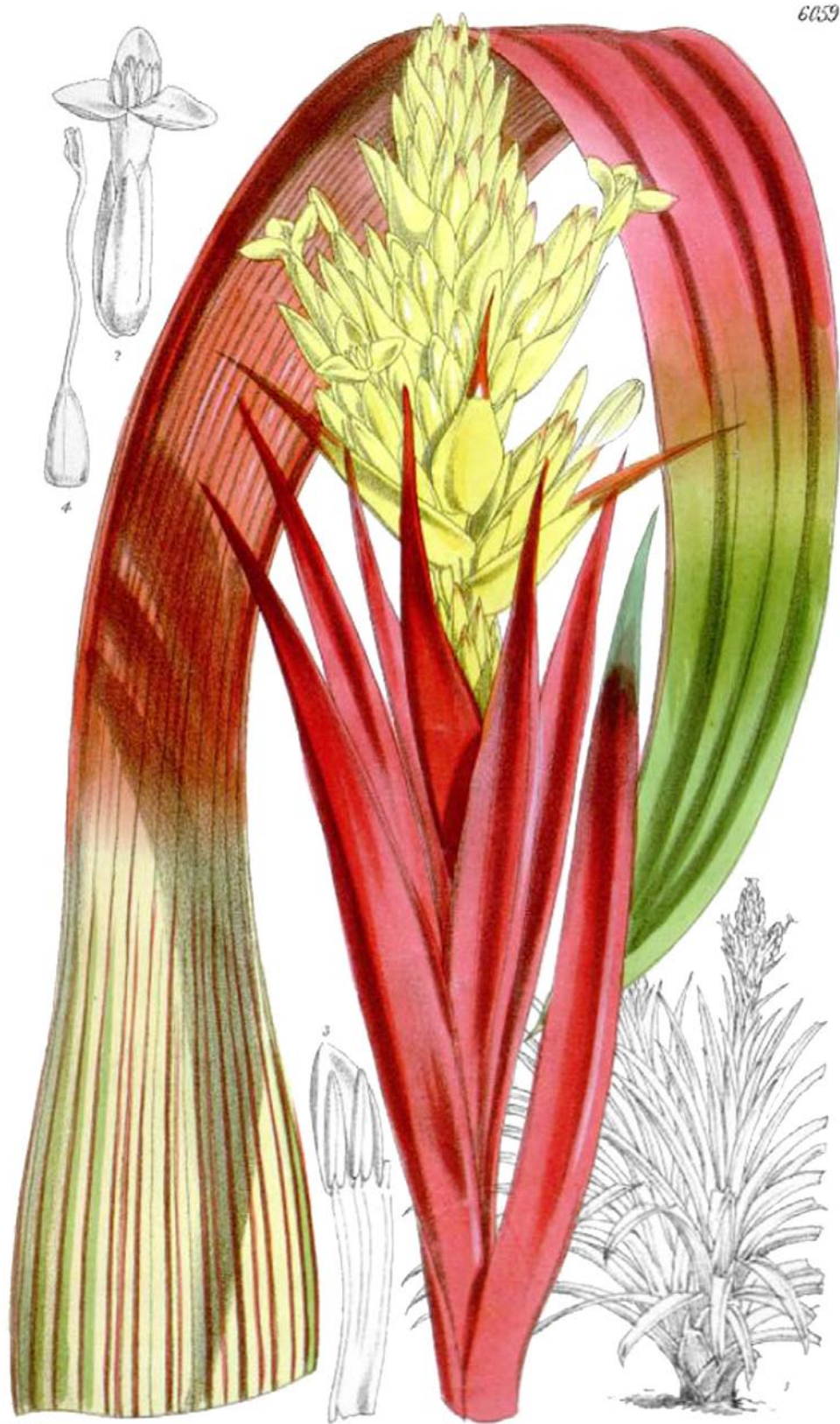
TILLANDSIA *sanguinea*, *André Tour du Monde*, p. 367.

During his explorations of the Northern Andes in 1876, M. Edouard André paid special attention to the Bromeliaceæ and Bomareas. The present plant is one of the most remarkable of the novelties which rewarded his labours. It has entirely the habit of a *Nidularium*, but the ovary is free from the calyx, and the structure of the flower in other respects quite corresponds with that of the genus *Caraguata*. The bright tint of the leaves, which varies a good deal in different individuals, renders it a very desirable acquisition to our conservatories. It is, of course, an epiphyte in its native forests. It was first seen by M. André in May, 1876, at a place called "Los Astrojos," situated between Tuquerres and Barbacoas, in the western cordilleras of the Andes of New Granada. None of the first gathering reached Europe alive, but on a second visit, in 1880, he succeeded in bringing it home. A stock of the plant has been raised by M. Bruant, of Poitiers. Our drawing was made in November, 1883, from a plant which was presented by M. André to the Kew collection.

DESCR. Acaulescent. *Leaves* arranged in a dense rosette, JULY 1ST, 1884.

lanceolate, acute, falcate, thin in texture, minutely obscurely lepidote on both surfaces, the ribs fine and numerous, the margin entire, the clasping base but little dilated, the lower part green, the upper half or two-thirds strongly tinged with bright red on both sides, the outer leaves of the rosette a foot or more long, the inner growing gradually shorter. *Flowers* arranged in a cluster at the base of the centre of the rosette of leaves, each furnished with a short pedicel, which is subtended by an oblong obtuse membranous bract. *Calyx* under an inch long, with three oblong obtuse erect segments united in a cup at the base. *Corolla* two and a half or three inches long, with a long clavate yellowish-white tube and three short spreading ovate obtuse segments. *Stamens* all six inserted at the same level near the throat of the corolla-tube; filaments adnate nearly to the apex; anthers linear-oblong, sagittate at the base. *Ovary* ampullæform, with very numerous superposed ovules in each of the three cells; style filiform, reaching out of the corolla-tube; stigmas short, ovate, not spirally twisted. *Capsule* oblong, chartaceous; seeds numerous, like those of a *Tillandsia*.—*J. G. Baker.*

Fig. 1, The whole plant, much reduced; 2, a flower, *life size*; 3, portion of the corolla, with stamens, *enlarged*; 4, pistil, *life size*; 5, apex of style; 6, ovary:—*both enlarged.*



W. Borch, del. et. lith.

Van-der-Weide, del. et. lith.

TAB. 6059.

CARAGUATA ZAHNII.

Native of Chiriqui.

Nat. Ord. BROMELIACEÆ.—Tribe TILLANDSIÆ.

Genus CARAGUATA, *Plumier*; (*Endl. Gen. Pl.*, p. 183).

CARAGUATA *Zahnii*; cæspitosa, subcaulescens, glaberrima, nitida, foliis pedalibus e basi lata lineari-lanceolatis integerrimis recurvis acutis et apiculatis infra medium concavis flavis rubro-striatis, ultra medium planis coccineis apicem versus viridibus, scapo erecto dense foliaceo-vaginato, vaginis spithamæis imbricatis suberectis subulato-lanceolatis, panícula densa aurea, pedicellis brevibus, bracteis ovato-subulatis apicibus elongatis rubris, bracteolis ovato-oblongis, sepalis lineari-oblongis subacutis, corolla tubo calycem paulo superante lobis ovatis obtusis concavis, filamentis tubo corollæ adnatis, antheris vix exsertis lineari-oblongis, stigmatibus 3-fido.

TILLANDSIA *Zahnii*, *Hort. Veitch*.

I have adopted the specific name proposed for this splendid plant by its importers, Messrs. Veitch, in commemoration of the services of their excellent collector Mr. Zahn, who discovered it in 1870, in Chiriqui, Central America, shortly before he perished by drowning, a victim to his enterprise, on his way to Costa Rica.

The genus *Caraguata* comprises the *Tillandsias* with united petals and filaments adnate to the tube of the corolla. A good illustration of one species, *C. splendens*, is given by Professor Morren, of Liege, who is justly celebrated for his knowledge of *Bromeliaceæ*, and the fine collection he has formed of them in the Botanic Garden of Liege, in the *Flore des Serres* (t. 1091); the *C. Zahnii* is nearly allied both to this and to Grisebach's *Tillandsia compacta*, but differs in the much longer leaves, long sheaths on the scape, and form of the bracts. Messrs. Veitch's specimen, which is here figured, flowered in May of the present year.

OCTOBER 1ST, 1873.

DESCR. *Stems* tufted, branched from the base, very short, densely leafy, whole plant perfectly glabrous and shining. *Leaves* a foot long, by one to one and a quarter inches broad at the middle, linear-ligulate, acute, apiculate; lower half concave, rounded at the back, yellow with crimson stripes; upper half nearly flat, of a bright crimson passing into yellow, and then into green at the tip, margin quite entire and smooth. *Scape* erect, densely clothed with erect scarlet sheaths a span long, the long acute tips of which reach the inflorescence; the sheaths are lanceolate-subulate, obtusely keeled, quite entire, and very indistinctly nerved. *Inflorescence* an oblong compressed dense panicle of a pale golden colour, except the scarlet tips of the lowest bracts, which project from the base, and are ovate with long subulate points; bracteoles boat-shaped, obtuse, hard and coriaceous, rather exceeding the sepals. *Sepals* linear-oblong, very concave, subacute, coriaceous, imbricate. *Corolla-tube* shortly exceeding the calyx, terete; limb one-third of an inch in diameter, of three ovate very obtuse concave lobes. *Stamens* with the filaments wholly adnate to the corolla-tube, at the mouth of which the linear-oblong yellow anthers appear to be sessile. *Ovary* trigonous; stigmatic lobes three, linear, erect, twisted.—*J. D. H.*

Fig. 1, reduced view of whole plant; 2, flower; 3, portion of corolla and stamens; 4, ovary style and stigmas:—figs. 2, 3 and 4, *magnified*.



TAB. 7274.

CARALLUMA CAMPANULATA.

Native of Ceylon.

Nat. Ord. ASCLEPIADEÆ.—Tribe

Genus CARALLUMA, *R. Br. (N.E. Br. in Hook.Ic. Pl. vol. xx. (Stapel. Barkl. p. 7.)*

CARALLUMA *campanulata*; ramis ascendentibus tetraquetris ad $\frac{2}{3}$ poll. diam. pallide viridibus angulis crenatis, crenis foliis minutis serratis instructis, floribus in umbellam terminalem dispositis longiuscule pedicellatis, sepalis lanceolatis subserrulatis, corolla 1 poll. diam. limbo plano velutino nudo saturate rubro-brunneo, lobis late ovatis acutis eciliolatis, corona exteriori 2-partita segmentis falcatis acutis, interioris lobis 5 simplicibus integris v. 3-dentatis antheras incumbentibus.

C. *campanulata*, *N. E. Br. in Gard. Chron.* 1892, ii. p. 369, fig. 61.

Boucerosia campanulata, *Wight Ic. Pl. Ind. Or.* t. 1287.

B. *umbellata*, *Thwaites Enum. Pl. Zeyl.* p. 209; *Trimen Syst. Cat. Pl. Ceylon*, p. 57.

B. *umbellata*, *var. ? campanulata*, *Hook. f. Fl. Brit. Ind.* vol. iv. p. 77.

In the Flora of British India, when treating of the species of *Boucerosia*, I found it impossible to describe them and those of *Caralluma* satisfactorily, from the fragmentary specimens in the Herbarium, and I stated that I was dependent for their characters and limitation mainly upon published and unpublished drawings and definitions. In respect of *B. campanulata*, I found that Thwaites, a most competent authority, had included it under *B. umbellata*, not even considering it a variety; but after giving due weight to the observations of Wight, who knew both species, I thought it a safer course to regard it as a variety, giving Wight's characters of the thinner angles of the stem and more tubular corolla which wants the brown base of *umbellata*, to which I added that according to Herbarium specimens the flowers of *campanulata* are smaller and the lobes of the corona narrower. Since that period, now ten years ago, the species of *Boucerosia* and *Caralluma* have been submitted to a searching examination by Mr. N. E. Brown, founded on living specimens, with the result that these two genera must be merged into one,

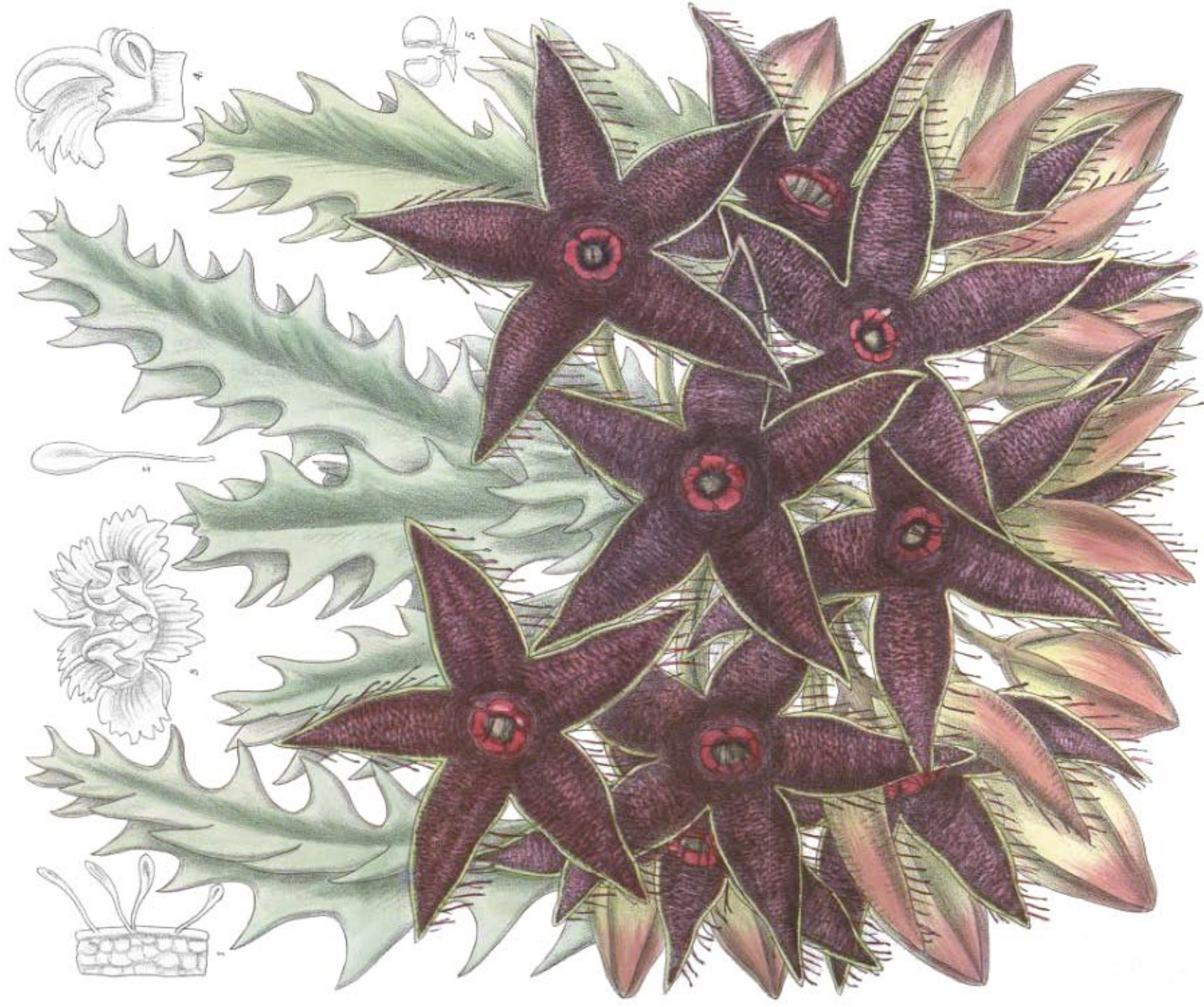
JANUARY 1ST, 1893.

Caralluma, with thirty-eight species. The genus is scattered over an area of the Old World extending from Spain and Northern and Southern Africa to Arabia and Northern and Western India, twelve species being British Indian.

Wight gave no habitat of his *B. campanulata*, nor did he know its origin. His drawing was made from a dried specimen in his Herbarium, now at Kew, and was in all probability received from Ceylon, where (under the name of *umbellata*) Thwaites says it grows on rocks near Korne-galle. It is not known from Continental India.

The plant here figured was received from the Royal Botanic Gardens of Peradeniya in 1890, and flowered in the Succulent House, at Kew, in July, 1892.—*J. D. H.*

Fig. 1, Portion of angle of stem and leaf; 2, calyx; 3, column seen from above; 4, lobe of inner corona; 5, pollinia:—*all greatly enlarged.*



TAB. 8267.

CARALLUMA NEBROWNII.

German South-west Africa.

ASOLEPIADAEAE. TRIBE CEROPEGIEAE.

CARALLUMA, *R. Br.; Benth. et Hook. f. Gen. Plant.* vol. ii. p. 782.

Caralluma Nebrownii, *Berger in Notizbl. Bot. Gart. Berlin*, vol. iv. p. 249; species *C. lateritiae*, N. E. Br., affinis, a qua pedicellis multo longioribus corolla intense atro-kermesina rugosiore et coronae lobis majoribus differt.

Caules succulenti, aphylli, subconferti, erecti, tetragoni, grosse dentati, 8–15 (vel interdum ad 25) cm. alti, 1·8–3 cm. (dentibus exclusis) erassi, glabri, virides vel purpureo-maculati. *Flores* prope basin ramorum fasciculati. *Pedicelli* 4–9 cm. longi, 4–5 mm. crassi, glabri. *Sepala* 7–8 mm. longa, ovato-lanceolata, acuminata, glabra. *Corolla* rotata, 9–11 cm. diametro, extra laevis, rubro-purpurea, intra granulato-rugosa, intense atro-kermesina punctis parvis luteis disco et basi loborum maculata, glabra nisi lobis pilis longis clavatis ad apicem parce ciliatis; discus leviter depressus; lobi 3·6–4·3 cm. longi, 1·7–1·9 cm. lati, lanceolati, acuminati, basi subplani, superne marginibus recurvis. *Corona exterior* cupularis, profunde 5-loba, atrata vel atro-brunnea; lobi 3 mm. longi, 4–5 mm. lati, transverse rectangulari, apice dentati. *Coronae interioris* lobi inaequaliter bicornuti, cum corona exteriori dorsaliter connexi, atro-brunnei, cornubus interioribus 4 mm. longis subulatis erectis apice recurvis, exterioribus 0·5–1·5 mm. longis dentiformibus vel subulatis erectis.—N. E. BBROWN.

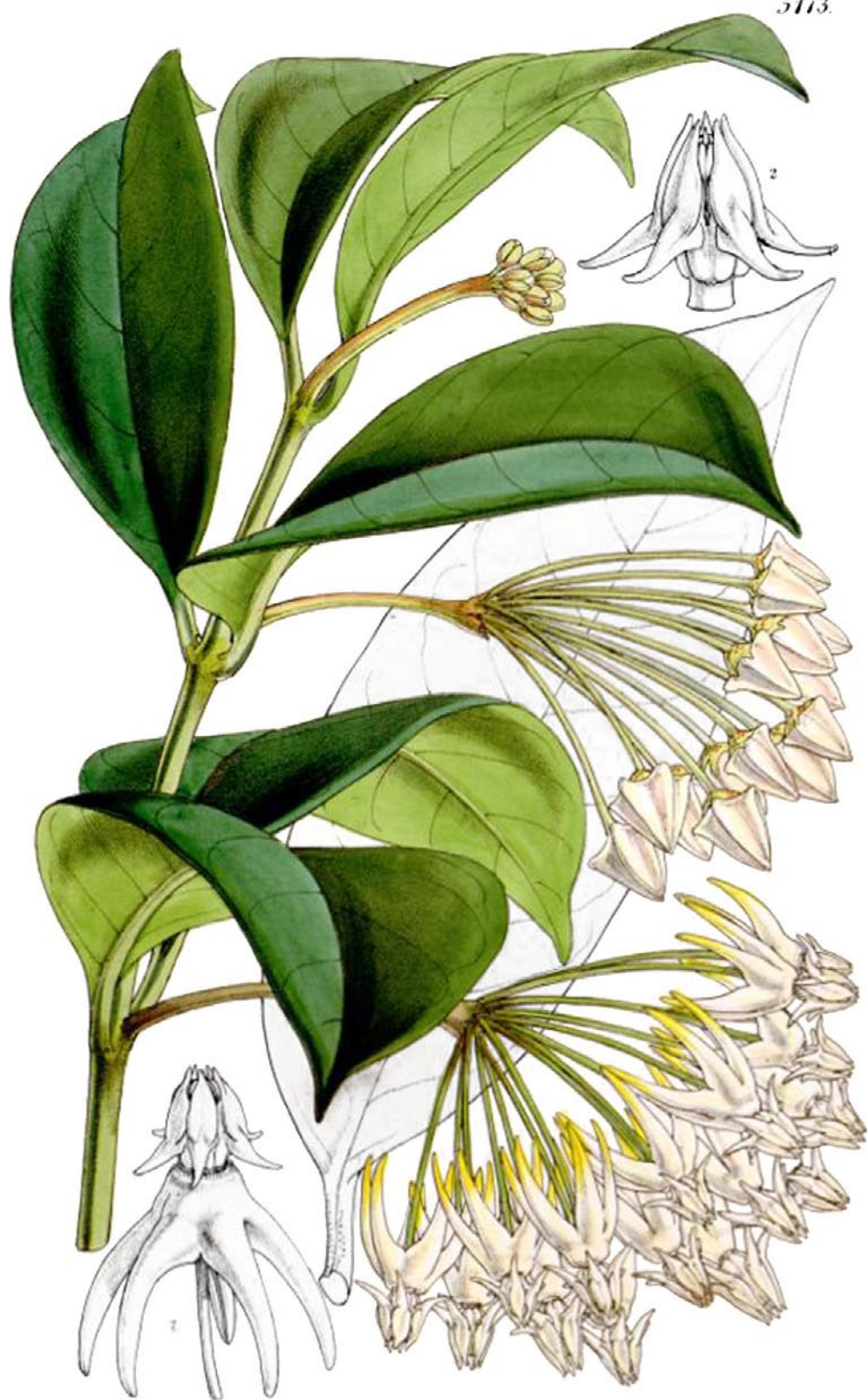
Caralluma Nebrownii is one of the largest-flowered species in the genus, and is most nearly related to *C. lateritia*, N. E. Br., a native of the northern Kalahari desert, from which the plant now figured differs in having much longer pedicels, a more rugose corolla of a blackish-crimson colour flecked with very small yellowish spots on the disk and at the base of the lobes instead of a uniform brick red; the corona in the present plant is also larger than that of *C. lateritia*. *C. Nebrownii* is allied also to *C. huillensis*, Hiern, an Angolan species, and to *C. lutea*, N. E. Br., a species from South Africa. In both of these plants the pedicels are shorter than in the subject of our plate; *C. huillensis* has moreover pubescent stems, while in *C. lutea* the flowers are yellow and the stems have a different facies.

AUGUST, 1909.

The species now described was discovered by Mr. Dinter near Barmen in German South-west Africa (*Dinter*, n. 1502). Living plants sent by him to the late Sir Thomas Hanbury at La Mortola flowered there in July, 1907, and again in November, 1908, when the specimens from which our drawing was prepared were forwarded to Kew. The plant calls for very dry treatment, more especially in winter, when little or no water should be given to it.

DESCRIPTION.—*Herb*; stems succulent, leafless, somewhat clustered, erect, 4-angled, the angles coarsely toothed, usually 3–6, occasionally 10 in. in height, $\frac{3}{4}$ – $1\frac{1}{4}$ in. thick not including the teeth, glabrous, green or blotched with purple. *Flowers* fascicled near the bases of the branches; pedicels $1\frac{1}{2}$ – $3\frac{1}{2}$ in. long, 2–3 lines thick, glabrous. *Sepals* $\frac{1}{4}$ – $\frac{1}{3}$ in. long, ovate-lanceolate, acuminate, glabrous. *Corolla* rotate, $3\frac{1}{2}$ – $4\frac{1}{2}$ in. across, smooth and reddish-purple outside, within rugose-granular and deep blackish-crimson with some small yellow specks on the disk and at the base of the lobes, sparsely beset with long clavate hairs along the lobes, otherwise glabrous; disk slightly depressed; lobes $1\frac{1}{4}$ – $1\frac{3}{4}$ in. long, $\frac{2}{3}$ – $\frac{3}{4}$ in. across, lanceolate, acuminate, almost flat at the base, with the margins higher up somewhat recurved. *Outer corona* cupular, deeply 5-lobed, blackish or blackish-brown, the lobes $1\frac{1}{2}$ lin. long, 2 – $2\frac{1}{2}$ lin. wide, toothed at the tip, transversely rectangular. *Inner corona* with unequally 2-horned lobes, dorsally united to the outer corona, blackish-brown, the inner horns 2 lin. long, subulate, erect and recurved at the tip, the outer under a line long, erect subulate or tooth-like.

Fig. 1, margin of corolla-lobe with four vibratile hairs; 2, a vibratile hair; 3, the entire corona; 4, a stamen, with one of the inner corona-lobes, showing its attachment to a lobe of the outer corona; 5, pollen-masses:—*all enlarged*.



CENTROSTEMMA MULTIFLORUM.

Many-flowered Centrostemma.

Nat. Ord. ASCLEPIADEÆ.—PENTANDRIA DIGYNIA.

Gen. Char. Calyx 5-partitus. Corolla 5-fida, abrupte reflexa, laciniis oblongo-lanceolatis, fauce annulo piloso ornata. Gynostegium inferne angustatum, sulcatum, corollæ faucem longe superans. Corona staminea summo gynostegio inserta, 5-phylla, foliolis dimidia superiori parte gynostegio adnatis stigma superantibus, infer, in cornu calcaratum productis. Antheræ parvæ, membrana ovata stigmati adpressa terminate. Massæ pollinis erectæ, oblongæ, basi et apice obtusæ, compressæ. Stigma subdepressum, papilla acutiuscula. Styli elongti. Folliculi læves, oblongi, attenuati. Semina comosa.—Frutices *Moluccani, volubiles*; folia *opposita, coriacea*; umbellæ *interpetiolares v. terminales, pedunculatæ, multifloræ*; flores *majusculi, pedicellis gracilibus habituque proprio. Decaisne.*

CENTROSTEMMA *multiflorum*; foliis oblongis vel lineari-oblongis acuminatis basi in petiolum attenuatis, corollæ fauce annulo barbato albo cincta, coronæ stamineæ foliolis arcuato-recurvis acutis lobis superioribus brevioribus stigma super acutis. *Decaisne.*

CENTROSTEMMA *multiflorum*. *Dcne. in Ann. Sc. Nat.* 1838, v. 9. p. 272, et in *De Cand. Prodr.* v. 8. p. 634. *Bl. Mus. Bot. Lugd. Bat.* p. 45.

HOYA *multiflora*. *Bl. Cat. Hort. Buitenz.* p. 49.

CYRTOCERAS *reflexum*. *Benn. in Plant. Jav. Rar.* p. 90. t. 21.

CYRTOCERAS *Lindleyanum*. *Dcne. in De Cand. Prodr.* v. 8. p. 634.

CYRTOCERAS *floribundum*. *Maund's Botanist,* v. 4. t. 178.

HOYA *coriacea*. *Lind. Bot. Reg.* 1839, t. 18 (not *Bl.*).

Drawn from a fine plant which flowered at Messrs. Hugh Low and Son's Nursery, Clapton, in July, 1859, having been received from Borneo. The leaves seem to be subject to a little variation; those on the specimen represented by Mr. Bennett being longer and narrower, and especially attenuated from near the middle to the base: but the three figures I have quoted seem all to belong to one and the same species, though published under as many different names. Yet Decaisne records two supposed species, and Blume as many as four, apparently established on very slight grounds. The genus, itself but
MARCH 1ST, 1860.

slightly differing from *Hoya*, appears peculiar to the Malay Islands;

DESCR. A glabrous climber, with terete *stems*, and opposite, subcoriaceous, oval or subelliptical, penniveined *leaves*, shortly acuminate at the apex, and more or less attenuated at the base. *Petiole* short. *Peduncles* interpetiolar and terminal, shorter than the leaves, bearing a moderately spreading, many-rayed, slightly drooping *umbel*: the *pedicels* or *rays* as long as the peduncle. *Calyx* small, five-parted. *Corolla* rotate, white, deeply five-lobed; lobes linear-oblong, singularly deflexed, tipped with buff-colour, the margins revolute. *Gynostegium* and *folioles* of the *corona staminea* as in the genus.

Fig. 1. Flower. 2. Folioles of the *corona staminea*:—magnified.



TAB. 6315.

CEROPEGIA BARKLEYI.

Native of South Africa.

Nat. Ord. ASCLEPIADEÆ.—Tribe CEROPEGIÆ,

Genus CEROPEGIA, *Linn. (Benth. et Hook. f. Gen. Plant, v. ii. p. 779.)*

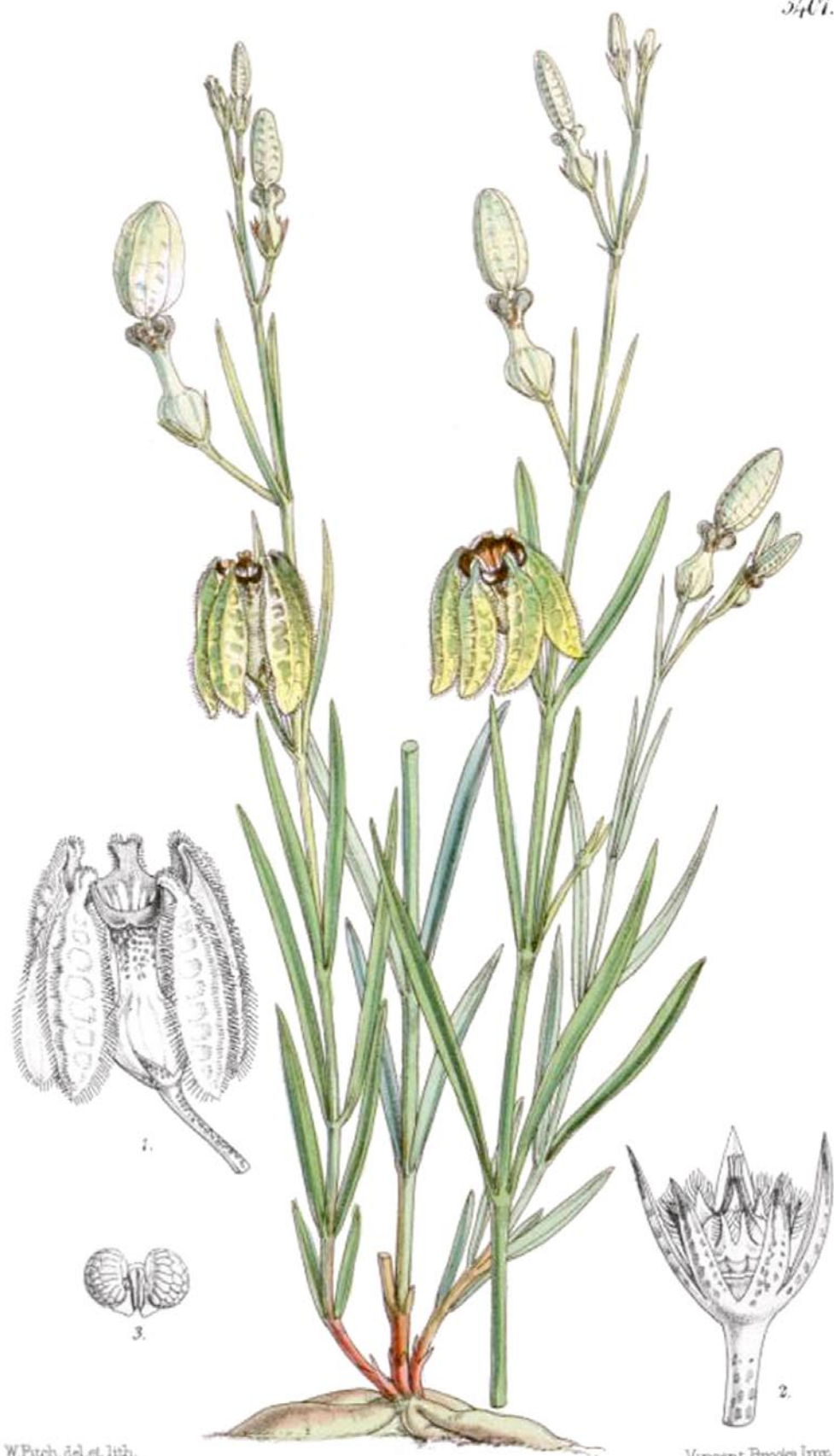
CEROPEGIA *Barkleyi*; rhizomate tuberoso, caule gracili ascendente simpliciusculo glabro v. pilosulo, foliis sessilibus ovato-lanceolatis acuminatis carnosis, pedunculis axillaribus gracilibus paucifloris, floribus 2-pollicaribus, pedicellis apice incrassatis, calycis segmentis acicularibus, corolla tubo curvo basi globoso dein anguste infundibuliformi, ore dilatato, limbi lobis tubo fere æquilongis e basi triangulari filiformibus erectis medio pilosis apicibus horizontaliter incurvis connatis.

This is one of many undescribed species of *Ceropegia* which seem to abound in the dry regions of South Africa. These probably form a conspicuous feature in the flora of regions that are all but desert during a considerable portion of the year, to meet the exigences of which they are provided, some with tuberous rhizomes, others with very succulent leaves, whilst others still have fleshy leafless stems. They differ too remarkably in the structure of the corolla lobes; in the majority of them these are as in the present species slender, erect; spread first outwards and then inwards, finally meeting and cohering by their tips as in most extra-African species; in others they dilate much at the tip, and cohering by broad expansions, form a sort of parachute over the mouth of the corolla, as in *C. Sandersoni*, Tab. 5792, whilst in still others the lobes are free, clawed, and hang down loosely from the throat of the corolla, as in *C. Sororia*, (tab. 5578) and *C. Bowkeri*, (tab. 5407). It would be an interesting study for some South Africa naturalist to ascertain the significance of these three types of corolla, which in all probability represent as many modes of fertilization by insect agency. *Ceropegia Barkleyi* flowered at the Royal Gardens, Kew, in May of the present year, from tubers sent to H. E. Sir Henry Barkly, K.C.B., (late Governor of the Cape Colony), from the
AUGUST 1ST, 1877.

Morley Mission Station in the Transkei District, by Mr. Bowker. It is allied perhaps most nearly to *C. africana*, (Bot. Reg. t. 626).

DESCR. Glabrous or hairy on the stem. *Rootstock* tuberous, fleshy, sending down stout cylindric fibres. *Stem* simple or branched from the very base, slender at first prostrate, then ascending, six inches or a foot or more high, probably at times climbing, cylindric, lower nerves swollen. *Leaves* one to two inches long, opposite, sessile or very shortly petioled, ovate-lanceolated, acuminate, very fleshy, keeled below, bright green with white nerves. *Flowers* in axillary few-flowered racemes; peduncle slender, shorter than the leaves; bracts subulate; pedicels quarter to half inch long, swollen at the apex. *Calyx* segments between subulate and acicular, spreading. *Corolla* nearly two inches long; tube slightly curved, globose at the very base, then narrowly funnel-shaped, glabrous, pale pink, throat not much dilated; limb-segments triangular at the base, then narrowed into filiform processes which are first incurved, then curved slightly outwards with the tips horizontally incurved and cohering; the segments are ciliated about the middle, are pale green externally, and internally reticulated with dark purple. *Outer corona* annular, 10-toothed; inner with rounded lobes.—*J. D. H.*

Fig. 1. Flower and pedicel; 2, corona; 3, pollen masses and caudicle:—*all enlarged.*



CEROPEGIA BOWKERI.

Bowker's Ceropegia.

Nat. Ord. ASCLEPIADEÆ.—PENTANDRIA MONOGYNIA.

Gen. Char. (*Vide supra*, TAB. 5306.)

CEROPEGIA *Bowkeri*; erecta glabra, caule tenui ancipiti simplici, foliis anguste linearibus utrinque acutis internodio longioribus, pedunculis axillaribus unifloris vix uncialibus, sepalis anguste linearibus, corollæ tubo tenuiter striato urceolato inferne ventricosæ, limbi laciniis tubum æquantibus liberis lato-linearibus plumoso-ciliatis intus villosis (cito arcte reflexis) corollæ staminea lobis exterioribus anguste triangularibus margine villosis, interioribus ligulæformibus glabris duplo longioribus. *Harvey.*

CEROPEGIA *Bowkeri*. *Harvey, Thes. Capensis*, v. 1. p. 9. t. 14.

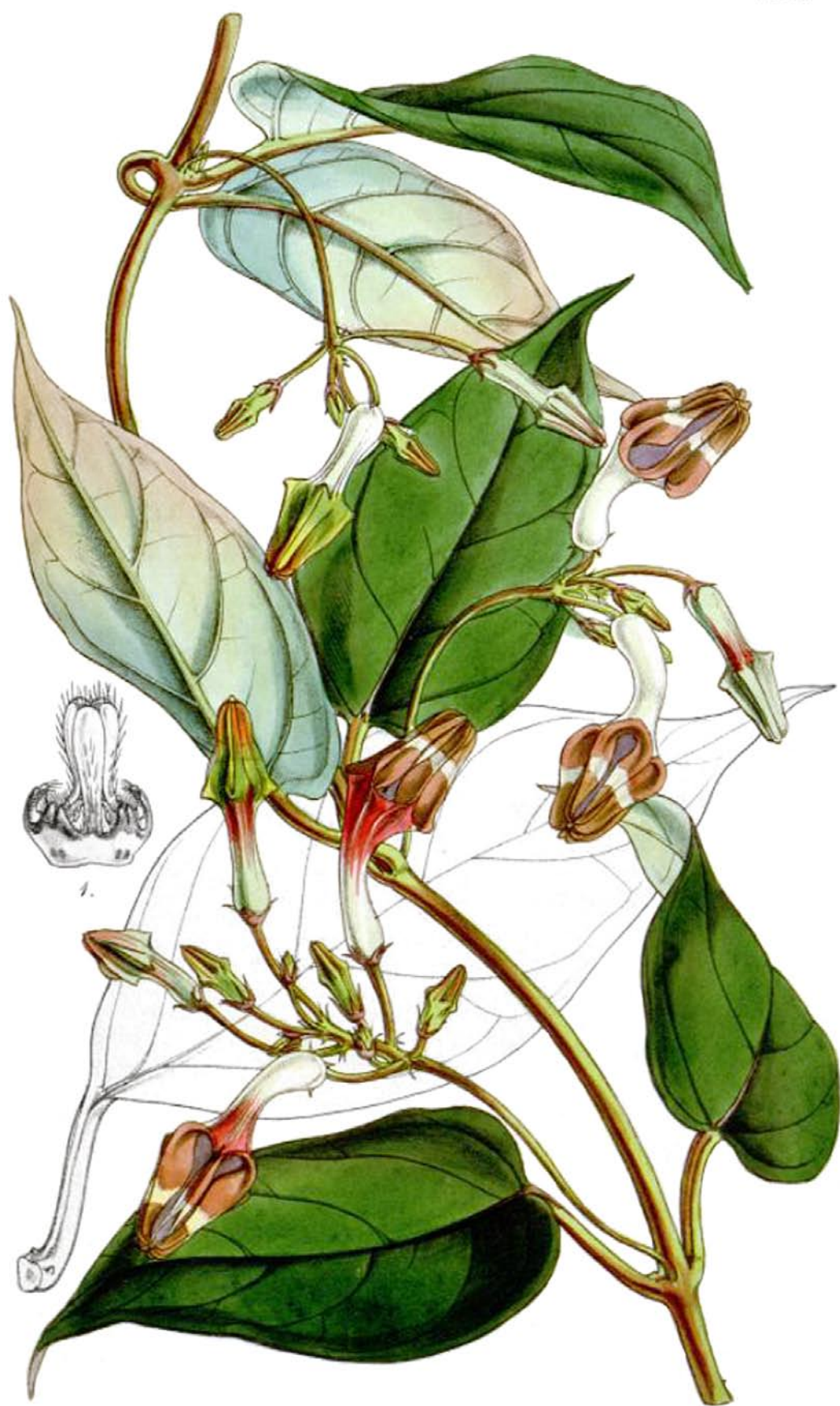
Remarkable as are the flowers of many species of the genus, this is certainly not one of the least peculiar in the structure of its flowers and the colour of its corolla. It is one of the many discoveries in South Africa (Kreili's country, Caffraria) made by Henry Bowker, Esq.; and dried specimens and living tubers were communicated to Dr. Harvey, who published a good figure in his valuable 'Thesaurus Capensis,' l.c. Mr. Bowker's specimens appear to have been preserved when the flowers were not fully developed, and with the segments of the corolla erect; whilst in our living plants the segments are remarkably reflected, so as almost to conceal the tubular portion of the flower. The species flowered, in our Succulent House, in 1863.

DESCR. *Root* a rather depresso-globose *tuber*, from the crown of which arises a very short *stem*, which soon (near the base) divides into a few erect, slender, simple, subcompressed *branches*, giving the appearance of undivided stems a span to a foot high. *Leaves* in rather distant opposite pairs, two to three inches long, one to two lines wide, linear-subacute, sessile, becoming smaller upwards. From the axils of the pairs of upper leaves, a short *peduncle*, less than an inch long, bears a single flower. *Calyx*

OCTOBER 1ST, 1863.

of five, linear-subulate, pale-green *sepals*, spotted with brown. *Corolla* an inch and a half long (including the reflexed limb), pale yellowish-green. *Tube* cylindrical, dilated and globose at the base, and again at the summit, which is brown, and where five subglobose spurs are formed. *Segments* of the *corolla* as long as the tube, linear-oblong, puckered on the surface and hairy above, beautifully fringed at the margin, soon strongly reflected on the tube. *Outer lobes* of the *staminal crown* broad, subulate, villous at the margin, a little spreading; *inner* one of five, erect, narrow-linear, elongated lobes.

Fig. 1. Entire flower. 2. Calyx and staminal crown. 3. Pollen-masses:—*magnified*.



CEROPEGIA CUMINGIANA.

Mr. Cuming's Ceropegia.

Nat. Ord. ASCLEPIADEÆ.—PENTANDRIA DIGYNIA.

Gen. Char. *Calyx* 5-partitus. *Corolla* tubulosa, basi magis minusve ventricosa, subinfundibuliformis, limbo laciniis compressis, ligulatis, erectis, sæpius arcuatis apiceque cohærentibus, haud rare ciliolatis; præfloratione valvata. *Corona staminea* duplici serie campanulata v. rotata, 5–10–15-lobata, lobis antheris antepositis sæpius longioribus, ligulatis, apice sæpissime approximatis conniventibus. *Antheræ* apice simplices, membrana destitutæ. *Massæ pollinis* erectæ, rotundatæ, margine interiori pellucidæ. *Stigma* muticum. *Folliculi* cylindraeci, læves, pergamacei. *Semina* comosa.—Suffrutices v. *potius herbæ perennes Indicæ v. Africane, radice bulbosa, erectæ carnosæ aphyllæ v. sæpius volubiles foliosæ; foliis haud raro carnosulis; floribus paucis aggregatis v. subcorymbosis, virentibus purpureo-violaceo-maculatis, v. rarius concoloribus lutescentibus. DC.*

CEROPEGIA *Cumingiana*; volubilis glabra, foliis ovatis basi subcordatis apice longe attenuatis acutis tenuibus, pedunculis folium medium æquantibus plurifloris, sepalis acutis, corollæ tubo clavato, limbi laciniis oblongis glabris apice cohærentibus, coronæ stam. pilosæ fol. extern. brevibus bifidis inter. ligulato-clavatis exteriora multo superantibus conniventibus.

CEROPEGIA *Cumingiana. Dcne, in De Cand. Prodr. v. 8. p. 643. Cuming, Herb. Philipp. n. 447.*

Received from Java, by Messrs. Veitch and Sons, through their Collector, Mr. Thos. Lobb. This is clearly the same plant with Mr. Cuming's No. 447, from Manilla, quite agreeing with his specimens in my Herbarium. The discrepancies in the description of the staminal crown of the flower, by M. Decaisne, and that drawn up by me, may be accounted for from the alteration in that part of a fleshy flower by drying and pressure. A stove plant, flowering in August with Mr. Veitch.

DESCR. A glabrous, climbing and twining plant, with terete, rounded *stems*, tinged with red. *Leaves* opposite, on rather long, flexuose petioles, ovato-acuminate, somewhat membranaceous, cordate at the base, often tinged with brown and with the costa red. *Peduncle* reaching about as far as the middle of the leaf, terminated by a *cyme* of eight to ten *flowers*. *Pedicels* with subulate bractæas at the base. *Calyx* deeply five-partite:

segments subulate, spreading. *Corolla* one and a half to two inches long: the *tube* contracted in the middle, cream-coloured, the *limb* chocolate purple, with a pale transverse band; the segments connivent, large. *Staminal crown* double; exterior of five short, obtuse, double, slightly incurved teeth; interior of as many elongated, clavato-ligulate ones, connivent, three or four times as long as the outer: all pilose.

Fig. 1. Staminal crown:—*magnified*.



ADDITIONS TO THE "HORTUS KEWENSIS."

1. CEROPEGIA CUMINGIANA.

Volubilis glabra, foliis ovatis basi cordatis apice longe attenuatis acutis tenuibus, pedunculis folium medium æquantibus plurifloris, sepalis acutis, corolla tubo clavato, limbi laciniis oblongis glabris apice cohærentibus, corona stam. ampla, fol. externe acuminatis approximatis glabris, interior. subulatis exterior. vix duplo superantibus.—*Decaisne in De Cand. Prodr.* vol. viii. p. 643.

HAB. Philippine Islands, *Cuming*, n. 447. Island of Bella, in the Java Sound, *Thos. Lobb. Cult. in Hort. Veitch*, 1847.

A very pretty climber and free flowerer, from the collection of Messrs. Veitch and Sons, in whose stove, at Exeter, it bloomed in August, 1847. The flowers are among the largest of the genus, and variegated with dull green and reddish brown.



(3015)

CEROPEGIA ELEGANS. BEAUTIFUL
CEROPEGIA.

Class and Order.

PENTANDRIA DIGYNIA.

(Nat. Ord.—ASCLEPIADEÆ. Br.)

Generic Character.

Corona staminea exterior abbreviata, 5-loba; interior 5-phylla, foliolis ligularibus indivisis. *Massæ pollinis* basi affixæ, marginibus simplicibus. *Stigma* muticum. *Folliculi* cylindraci, læves. *Semina* comosa. Br.

Specific Character and Synonym.

CEROPEGIA* *elegans*; volubilis lævis, radice fibrosis foliis oblongis acutis, pedunculis axillaribus 1- vel 2-floris, corollæ tubo clavato incurvo basi inflato-ventricoso, limbo hemispherico, laciniis ligulatis longè ciliatis; lobis coronæ stamineæ exterioris profundè 2-partitis. Wall. MSS.

CEROPEGIA *elegans*. Wall. MSS.

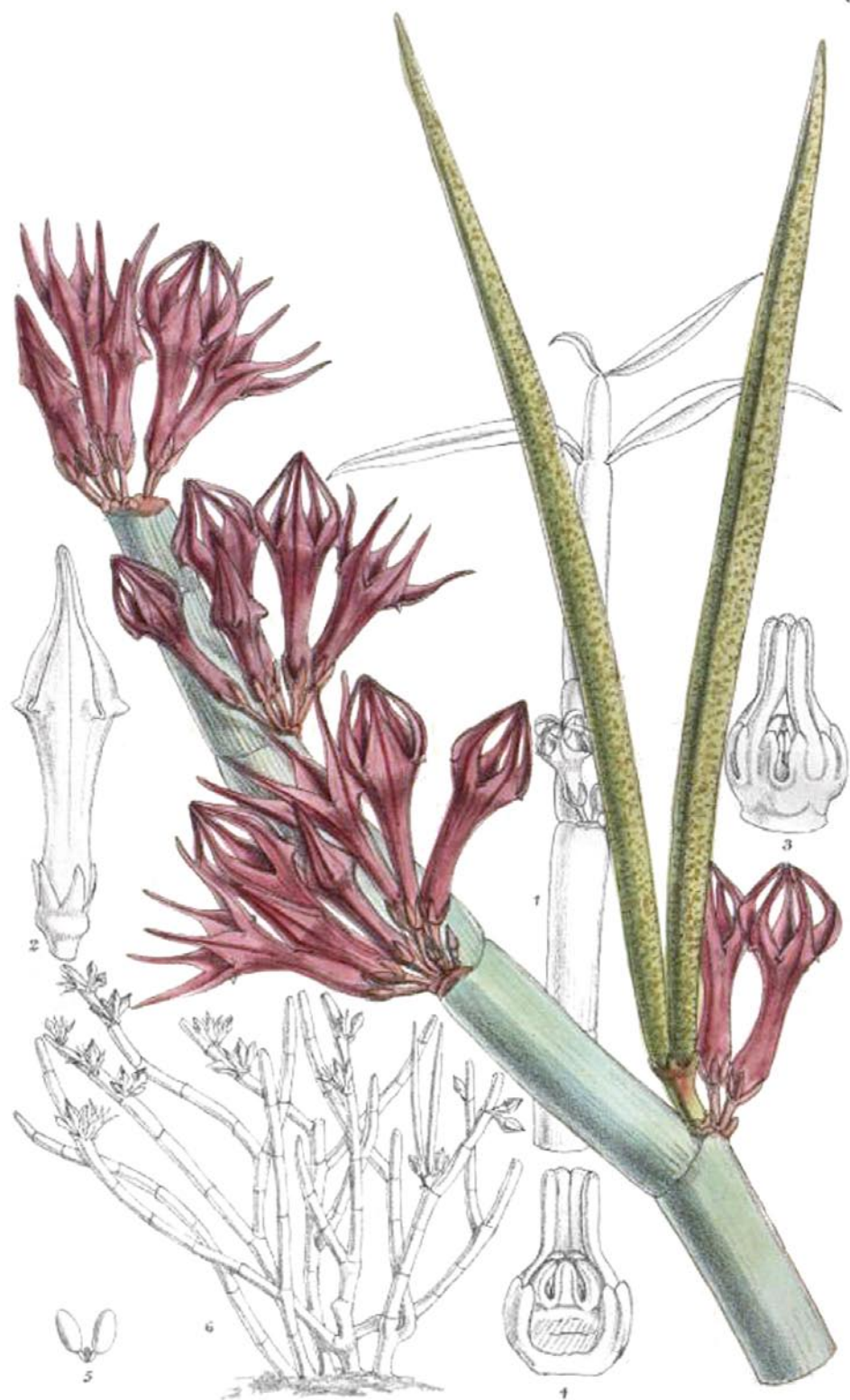
DESCR. The whole plant smooth, somewhat fleshy, climbing to a considerable extent. *Root* consisting of many filiform fibres, without any tubers. *Branches* numerous, long, and slender. *Leaves* opposite, remote, spreading, oblong acute, or ending in a short acumen, about three inches long, dark-green and shining above, pallid underneath, with elevated ribs, and capillary, distant nerves, which unite near the margins by of means arcuate veins; supported

From κηρός, wax, and πηγή, a fountain, in allusion to the delicate, waxy umbels of some species.

supported on cylindrical, curve, furrowed footstalks, which conceal within their axils a few of the minute, subulate, fleshy bodies, which belong to the family of ASCLEPIADEÆ. *Peduncles* axillary, solitary, thickish, round, shorter than the petioles, one or two-flowered. *Flowers* large, inodorous, of a purple colour, speckled with green, on slender, half-inch long, partial *peduncles*, each of which has at its base one or two small, linear, purplish bracteas. *Corolla* deeply five-cleft, closely pressed to the enlarged base of the corolla; *laciniæ* spreading, linear-subulate. *Corolla* nearly an inch and a half long; *tube* club-shaped, curved, much swelled and ventricose at the base, widening again at the upper end into the large, round, slightly depressed, five-cleft *border*; *laciniæ* tongue-shaped, acute, bent inwardly, and connected by their apices, having between them large and wide interstices; their sides are bent backwards so as to become contiguous, and the margins furnished with a row of long, black, shining, straight, loose and vacillating hairs; the inside of the border is dark purple. *Organs of fructification* very small, concealed in the bottom of the corolla, and surrounded with a double corona; the outer one five-cleft, or, rather, ten-cleft, in consequence of the five lobes, which are linear-subulate, and converge over the inner corona, being deeply two-cleft; inner corona five-cleft, lobes subulate, rather obtuse, undivided, opposite to those of the outer corona. *Anthers* fleshy, clavate, naked, bilocular; the cells being large, membrane-rmargined. *Pollen-masses* ovate, obtuse, erect, connected in pairs by means of a very short pedicel to the apex of a small, brown, sulcate corpusculum. *Stigma* indistinctly five-cornered, depressed, with an obscurely two-lobed, central prominence. WALL. MSS.

The Company's Botanic Garden of Calcutta is indebted to the Venerable Archdeacon HAWTAYNE of Bombay for this ornamental plant, which is one of the most elegant of the Genus to which it belongs. It was discovered on the Nilghiry range, and forwarded to the garden in 1824; where it blossoms profusely in the beginning of every year. A living plant was brought to England by Dr. WALLICH, in 1828, which was presented by the Hon. Court of Directors of the East India Company to His Majesty's garden at Kew, where it is now in full flower.

Fig. 1. Calyx and Pistil. 2. The double Corona Staminea. 3. The inner ditto. 4. Portion of the outer and inner Crown, with two Pollen-masses, and the angular Stigma. 5. Pollen-masses. 6. Pistils.—*Magnified*.



M.S. del. J. N. Fitch. lith.

Vincent Brooks Day & Son. Lith.

L. Reeve & Co. London.

TAB. 8066.
CEROPEGIA FUSCA.
Grand Canary.

ASCLEPIADACEÆ.

CEROPEGIA, Linn.; Benth. et Hook. f. Gen. Plant. vol. ii. p. 779.

Ceropegia fusca, C. Bolle in *Bonplandia*, vol. ix. (1861), p. 51; affinis *C. dichotomæ*, a qua caulibus crassioribus albidis et floribus rubro-brunneis differt.

Planta succulenta, e basi ramosa, subaphylla. *Caules* vel rami $1\frac{1}{2}$ –6 ped. longi, 6–9 lin. crassi, cylindrici, articulati, glabri, albidi. *Folia* paucissima, $\frac{3}{4}$ – $1\frac{1}{2}$ poll. longa, 1–2 lin. lata, lineari-lanceolata, acuminata. *Flores* ad nodos fasciculati, erecti, breviter pedicellati. *Sepala* 1 lin. longs, deltoideo-attenuata, glabra. *Corolla* $1\frac{1}{3}$ poll. longa, extra glabra, rubro-brunnea; tubus 10–11 lin. longus, inferne leviter inflatus, superne infundibularis, intra parce hirtus, albidus; lobi 7 lin. longi, e basi deltoideo-lanceolata $2\frac{1}{2}$ lin. lata lineari-attenuati, apice connati vel demum liberi. *Corona* lutea, glabra: lobi exteriores $\frac{1}{2}$ lin. longi, breviter bifidi, lobi interioribus adnati; lobi interiores 1 lin. longi, filiformes, erecti, coniventes. *Folliculi* 6– $6\frac{1}{2}$ poll. longi, $\frac{1}{4}$ poll. crassi, erecti, teretes, superne attenuati, obtusi, glabri, olivacei, fusco-punctati.

The odd-looking plant here figured bears so little resemblance, in its stems and habit, to the majority of the species of *Ceropegia*, that when out of flower it might easily be mistaken for a *Euphorbia*. The only other species of *Ceropegia* with which it can be compared is the nearly allied *C. dichotoma*, which is also a native of the Canaries, and *C. stapelioides*, a native of South Africa, both of which have long been in cultivation.

C. fusca is a native of Grand Canary, where it was originally discovered by Carl Bolle about the year 1860. Since that time it does not appear to have been collected, and nothing more was known of it until 1904, when Mr. Walter Ledger, of Wimbledon, who is much interested in this genus, was instrumental in its rediscovery. He furnished Mr. Alaricus Delmard, a botanist resident in the Canary Islands, with its recorded habitat, and that gentleman soon succeeded in finding this interesting species, and early in 1905 sent the living plant, here figured, to Kew, where it flowered in June. Mr. Ledger writes that, according to Mr. Delmard, the goats have nearly exterminated the plant in its native locality. It

MARCH 1ST, 1906.

grows in a dry district, and requires similar treatment to that given to *C. stapeliæformis*.

DESCR.—A bushy succulent, with many stems from the base, almost leafless. *Stems* erect, and about a foot and a half high, but according to Mr. Delmard sometimes six feet, simple or repeatedly forked, half to three-quarters of an inch thick, jointed, cylindric, glabrous, whitish. *Leaves* very few, only occasionally developed, three-quarters to one inch and a half long, linear-lanceolate, acuminate, dark green. *Flowers* in fascicles at the nodes, produced for two or more years in succession, erect. *Bracts* minute, deltoid-ovate, acute, glabrous. *Pedicels* a sixth of an inch long, glabrous. *Sepals* very small, acute, glabrous. *Corolla* about an inch and a third long, dull reddish-brown, glabrous outside; lobes and mouth of the tube glabrous within, with a faint purple bloom; tube thinly hairy inside, and white or very pale yellowish, nearly an inch long, a sixth of an inch in diameter at the swollen base, slightly bent and cylindric above, widening into a funnel-shaped mouth; lobes above half an inch long, deltoid-lanceolate, tapering into slender, linear tails, at first connate at the tips, sometimes more or less free and spreading. *Corona* light yellow; outer lobes very short, adnate to the base of the inner lobes subquadrate, shortly bifid, glabrous, inner lobes twice as long, filiform, connivent at the base over the anthers and style-apex, glabrous. *Follicles* about six inches long, a quarter of an inch thick, terete, tapering from about the middle to a blunt point, glabrous, light olive-green, speckled with brown.—N. E. BROWN.

Fig. 1, apex of a young stem with leaves, from Mr. Delmard's drawing; 2, flower-bud; 3, corona; 4, corona with one lobe removed and the side ones pushed back a little to show the anthers, which are opposite the corona-lobes; 5, pollen-masses:—figs. 2–5, *enlarged*.

ERRATUM.

Tab. 8058. In lines 23 and 28 of description, for *F. scardica* read *S. scardica*.



CEROPEGIA GARDNERI.

Mr. Gardner's Ceropeyia.

Nat. Ord. ASCLEPIADEÆ.—PENTANDRIA DIGYNIA.

Gen. Char. Calyx quinquepartitus. Corolla tubulosa, basi magis minusve ventricosa, subinfundibuliformis; limbi laciniis compressis, ligulatis, erectis, sæpius arcuatis apiceque cohærentibus, haud raro ciliolatis; præfloratione valvata. Corona staminea duplici serie campanulata vel rotata, 5–15-lobata; lobis antheris antepositis sæpius longioribus, ligulatis, apice sæpissime approximatis, conniventibus. Antheræ apice simplices, membrana destitute. Massæ pollinis erectæ, rotundatæ, margine interiore pellucide. Stigma muticum. Folliculi cylindracei, læves, pergamacei. Semina comosa.—Suffrutices vel potius herbæ perennes, Indicæ. De Cand.

CEROPEGIA *Gardneri*; volubilis glabra, foliis lanceolatis acuminatis, pedunculis petiolo subæquilongis paucifloris, calycis lobis linearibus, corolla ad tubi basin parum inflata supra medium subito valde ampliata apice aperte 5-crumenata margine ciliata, coronæ stamineæ lobis exterioribus linearibus acutis, interioribus multo longioribus latioribusque et apice reflexis, folliculis longiusculis teretibus. *Thw.*

CEROPEGIA *Gardneri*. *Thwaites, Enum. Plant. Zeyl. p.* 199.

A native of Ceylon, introduced by the Messrs. Veitch and Sons to their Nurseries at Exeter and Chelsea, and undoubtedly the *C. Gardneri* of our friend Mr. Thwaites's valuable 'Enumeratio,' above quoted. It was first detected by Mr. Gardner (whose name it bears), at Rambaddo, at an elevation of from 4000 to 5000 feet, and it well deserves a place in our collections. Mr. Thwaites aptly compares it with the *Ceropegia elegans* of Wallich, from the Nilgherries, figured at our Tab. 3015 of this work; but a slight glance at that figure will serve to justify Mr. Thwaites in his further remark, that "it can scarcely be a variety of it." It is indeed infinitely more ornamental than that, with larger leaves and larger flowers, twice the size of those of *elegans*. In the state of the bud there is a most striking difference when the lobes of the corolla are folded in, in a very remarkable manner, so as to present five spreading lobes like the lobes of a starfish, or still more like the expanded corolla of a *Stapelia*. Then again, in the fully-developed corolla (we can hardly say *expanded*,

for the lobes continue to adhere at the apices), the inflected segments take a broad heart-shaped form, the sides near the apex being reflected and forming the only opening into the tube. The colour is much brighter, and the hairs, so very abundant and conspicuous in *elegans* on the corolline lobes, are here few and very indistinct.

Fig. 1. The staminal crown. 2. The pistils:—magnified.



CEROPEGIA LUSHII. MR. LUSH'S CEROPEGIA

Class and Order.

PENTANDRIA DIGYNIA.

(Nat. Ord.—ASCLEPIADEÆ.)

Generic Character.

Calyx 5-partitus. *Corolla* basi ventricoso tubo infundibuliformi, limbi laciniis coniventibus ligulatis. *Corona staminea* duplex (?); interioris foliolis lobis exterioris opposita. *Antheræ* apice simplices. *Folliculi* cylindracei, læves. *Semina* comosa.—Suffrutices *vel* *Herbæ volubiles*. *Wight*.

Specific Character and Synonyms.

CEROPEGIA *Lushii*; volubilis, glabra, foliis lineari-acuminatis carnosis canaliculatis, corollæ tubo basi inflato-globoso, limbi 5-fido laciniis linearibus hirsutis approximatis, lobis coronæ stamineæ, exterioris lunulato-emarginatis interioribus alternantibus, interioris elongatis cylindraceo-filiformibus erectis flexuosis exteriori multo longioribus.

CEROPEGIA *Lushii*. *Graham in Ed. New Phil. Journ. ined.*

The Genus CEROPEGIA is peculiar to the East Indies, and is remarkable for the peculiar shape of the flowers, frequently arranged in umbels, hence its name *κηροπηγιον*, a candelabrum, or lamp-stand. Many of them are possessed of considerable beauty, and highly ornamental to the bushy and uncultivated places where they grow. The species too are esculent, and used by the natives either raw or stewed in curries. Of one species, *C. bulbosa*, the root resembles a small turnip, no less in appearance than in flavor, according to Dr. ROXBURGH; and its leaves taste like purslane. The present species is certainly among the least beautiful, and was communicated from Bombay by Mr. LUSH to the Edinburgh

burgh Botanic Garden, where it flowered in October last. Dr. WIGHT has pointed out its great affinity, especially in the structure of the flowers, with the *C. acuminata* (ROXB. Corom. v. 1. t. 8.); the chief difference being in the leaves; here narrow, thick, and fleshy, exhibiting no trace of veins; there broader, not fleshy, and out lateral veins from the costa.

DESCR. Whole plant slightly glaucous. *Stems* and branches slender, twining. *Leaves* opposite, linear and acuminate, two to four inches long, sessile, fleshy, with a furrow on the upper side. *Flowers* in pedunculated, axillary *umbels*, shorter than the leaves, each of three to four flowers. *Calyx* of five deep, linear segments. *Corolla* yellow-green, tinged with purple, the tube much inflated, the *limb* of five, linear, erect, and connivent segments, deep purple and hairy within. *Organs of fructification* on a short stipes, which supports a double crown: outer of five patent, lanceolate, fleshy segments, alternating with the five inner ones, which are much elongated, cylindrical, or filiform, erect, flexuose, diverging upwards.

Fig. 1. Flower. 2. Column of fructification.

Dr. WIGHT has requested me to correct the following errors in the description of *CEROPEGIA Wightii* at folio 3267 of this Magazine. At the beginning of the third paragraph, the words "exterior" and "interior" are transposed; it should have been stated that the interior lobes are twice as long as the exterior.—In the Generic Character, line first, for "*lobo*" read "*tubo*."



M.S. de J.N. Poth. Ed.

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L. Reeve & Co London.

TAB. 6927.

CEROPEGIA MONTEIROÆ.

Native of Delagoa Bay.

Nat. Ord. ASCLEPIADEÆ.—Tribe CEROPEGIÆ.

Genus CEROPEGIA, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. ii. p. 779.)

CEROPEGIA *Monteiroæ*; glaberrima, caule volubili, foliis carnosulis breviter petiolatis ovato-oblongis obtusis margine undulatis, floribus ad apicem pedunculi crassi paucis erectis breviter crasse pedicellatis, sepalis parvis lanceolatis, corolla $2\frac{1}{2}$ —3 pollicari, tubo basi oblongo-inflato dein anguste infundibulari, lobis abrupte in laminam inflexam basi ciliatam horizontalem dilatatis laminibus in umbraculam convexam albam purpurco-maculatam 5-sulcatam connatis, coronæ stamineæ lobis exterioribus nullis, interioribus elongatis incurvis in columnam 5-sulcatam conniventibus apicibus recurvis obtusis.

Those who frequent the Succulent House at Kew have long been familiar with the *Ceropegia Sandersoniæ* (BOT. MAG. t. 5792), which, growing in a pot, was trained up a rafter on the left-hand side on entering, and which attracts attention by its curious long green flowers, expanding into the form of a trumpet, surmounted by a fringed green spotted canopy, supported on five short legs. No second species at all like it of the extensive genus to which it belongs was ever known till 1884, when the tubers of that here figured were sent to the Royal Gardens by Mrs. Monteiro, of Delagoa Bay, widow of that able naturalist J. Monteiro, the author of the best books ever written on the Natural History of Tropical Africa.*

C. Sandersoniæ, just referred to, is a native of Natal, and was named in honour of a lady who, and whose husband (the late J. Sanderson, Esq.), were active contributors to the Royal Gardens. It seems, therefore, appropriate that its near ally should bear the name of the lady to whom the horticultural world is indebted for this singular plant.

C. Monteiroæ was received in 1884, and flowered in July, 1886. It comes from Delagoa Bay, a locality a good way

* "Angola and the River Congo," by Joachim J. Monteiro. 2 vols. Macmillan & Co. 1875.

MARCH 1ST, 1887.

north of Natal, and the plant consequently requires tropical heat, which *C. Sandersoniæ* does not.

DESCR. A glabrous climber, probably attaining a considerable height; branches terete, as thick as a goose-quill, white mottled with brown, in minutely warted patches. *Leaves* opposite, two to three inches long, shortly stoutly petioled, oblong-ovate, subacute or obtuse, succulent, pale green with undulate margins that are purplish on the extreme edges. *Flowers* about three, at the top of short stout lateral peduncles one-half to two-thirds of an inch long, shortly pedicelled; bracts minute. *Sepals* small, erect, lanceolate, acute, glandular at the base within. *Corolla* two to three inches long; inflated base narrowly oblong, green, about two-thirds of an inch long; tube above the bulb narrowly funnel-shaped, dull green below, striped white and dull brown above; mouth trumpet-shaped; lobes five, clawed, claws separated by a semicircular sinus, each lobe suddenly dilated into a broad triangular flat plate that arches over the mouth of the corolla, white spotted with purple brown, and with purple filaments at the base on each side; these five coalesce, and form a low, pointed, five-angled, five-furrowed canopy over the opening of the corolla, supported by the five claws. *Column* at the base of the bulb; outer lobes none, the inner arching inward and meeting form a five-grooved column, above which three short free recurved obtuse tips spread outwards.—J. D. H.

Fig. 1, Portion of stem; 2, sepal seen from within; 3, base of corolla and staminal column; 4, pollen-masses:—*all enlarged*.



CEROPÉGIA Oculáta. OCELLATED
CEROPEGIA.

Class and Order.

PENTANDRIA MONOGYNIA.

(Nat. Ord.—ASCLEPIADEÆ.)

Generic Character.

Calyx 5-partitus. *Corolla* tubulosa, basi magis minusve ventricosa, subinfundibuliformis, limbi laciniis compressis, ligulatis, erectis, sæpius arcuatis apiceque cohærentibus, haud raro ciliolatis; prefloratione valvata. *Corona staminea* duplici serie campanulata vel rotata, 5—10—15-lobata, lobis antheris antepositis sæpius longioribus, ligulatis, apice sapissime approximatis conniventibus. *Antheræ* apice simplices, membrana destitutæ. *Massæ pollinis* erectæ, rotundatæ, margine interiori pellucidæ. *Stigma* muticum. *Folliculi* cylindracei, læves, pergamacei. *Semina* comosa.—Suffrutices *vel potius* *Herbæ perennes* *Indicæ vel Africanæ*, radice bulbosa, erectæ, carnosæ, aphyllæ *vel sæpius volubiles, foliosæ; foliis* haud raro carnosulis; *floribus paucis aggregatis vel subcorymbosis, virentibus purpureo- vel violaceo-maculatis vel rarius concoloribus lutescentibus. D C.*

Specific Name and Character.

CEROPEGIA *oculata*; caule herbaceo volubili glabro, foliis cordato-ovatis acuminatis hirsutulis ciliatis basi glandulosis, pedunculis patenti-hirsutis 4—6-floris, corolla tubo basi valde inflato globoso limbo latiore, limbi segmentis oblongis erecto-conniventibus ciliatis inferne luteis nigro-oculatis superne intense viridibus, lobis coronæ stamineæ exterioris attenuatis emarginatis, interioris anguste linearibus rectis strictis integerrimis.

Raised in the stove of the Royal Botanic Gardens, Kew, from seeds sent from Bombay, by Miss JONES. It is
extremely

extremely handsome, and very curious, as are the CEROPEGIAS in general, in the structure of the flowers, which, in this case, represent the head of a snake with a green snout, and eye-like spots above the neck, or narrow part of the tube. It is in many respects allied to our *C. vinæfolia* from the same country, but the flowers are larger and handsomer; the corollas having a much more inflated base free from spots, a very differently marked limb, and a different form of the corona staminea. It is a ready growing plant, flourishing in a good heat, and it produces its flowers in September.

DESCR. *Stem* twining, slender, herbaceous, terete, glabrous. *Leaves* opposite, ovato-cordate, acuminate, slightly hairy and ciliated, with about four, erect, subulate, fleshy glands at the base above the leaf-stalk. *Peduncles* axillary, purple, clothed with spreading hairs, and bearing an umbel of from four to six, singularly shaped, and singularly coloured *flowers*: the *pedicels* have subulate *bractees* at their base. *Calyx* of five, deep, subulate segments. *Corolla* two inches long: *tube* pale yellow-green, remarkably inflated, and globose at the base, so much so that this is the widest part of the flower, contracted and elongated in the middle, spotted upwards, then again expanding and bearing five segments, which are oblong, broader at the base, erect, connivent, and coherent at the apices one with another; the base yellowish, with large eye-like spots, the upper portion dark green. *Corona* double orange-yellow; outer one cut into five, erecto-patent, acuminate but emarginate lobes, bearing each three blood-colored spots on the back; inner of five, erect and straight, connivent, narrow-linear segments, thrice as long as the outer ones.

Fig. 1. Double Corona.—*magnified*.



TAB. 5792.

CEROPEGIA SANDERSONI.

Mr. Sanderson's Ceropegia.

Nat. Ord. ASCLEPIADEÆ.—PENTANDRIA MONOGYNIA.

Gen. Char. (Vide supra, TAB. 5306.)

CEROPEGIA *Sandersoni*; glaberrima, caulibus robustis elongatis volubilibus, foliis crasse petiolatis ovatis v. ovato-cordatis subacutis obtusisve carnosiss, pedunculis brevibus crassis paucifloris, bracteolis parvis ovatis acutis, calycis lobis ovato-lanceolatis acuminatis, corolla albo-viridi magna ampla, tubo basi modice inflato curvo sursum valde ampliato late infundibuliformi translucido, lobis remotis in laminam horizontalem basi 2-lobam ciliatam dilatatis, laminibus in umbraculam latissimam 5-lobam 5-sulcatam connatis, coronæ staminæ lobis exterioribus 0, interioribus elongatis erectis apicibus recurvis.

CEROPEGIA *Sandersoni*, *Decaisne in litt.*

This very striking and conspicuous-flowered plant, was discovered in July, 1867, by our active and able correspondent, John Sanderson, Esq., of Natal, in the Bush on the banks of a stream flowing into the Umgeni river in a stony soil; and by him a sketch was in the following year sent both to myself and to my friend M. Decaisne, who provisionally gave it the above name,—a richly-deserved compliment to its excellent and liberal discoverer. In 1868 live specimens were transmitted in a Ward's case by Mr. Sanderson to Kew, and these having gone on flowering abundantly, from the month of May till the present time, enable me to figure it here. In habit *C. Sandersoni* differs altogether from its congeners, as it does in its stout stem like that of a *Vanilla*, its succulent leaves, and the remarkable structure and colour of its semi-transparent flower capped by the curious broad lobed hood of mottled green, which bears near the margin a series of erect white flat hair-like processes.

SEPTEMBER 1ST, 1869.

DESCR. A lofty glabrous climber. *Stems* stout, succulent, as thick as a goosequill, twining, and sparingly branched. *Leaves* small and distant for the size of the plant, shortly stoutly petioled, one and a half to two and a half inches long, ovate-cordate, obtuse, thick and succulent, nerveless, deep green like the stems. *Peduncles* axillary, short, curved, stout, terete, bright green, three- to four-flowered. *Bracteoles* small, subulate. *Pedicels* short. *Calyx-lobes* subulate, quarter of an inch long, green. *Corolla* two and a half inches long, curved at the base, two inches broad across the top; tube slightly inflated and green at the base, expanding into a funnel-shaped, five-angled, transparent limb, with opaque green reticulated veins; this presents five short distant lobes on its margin, which bears the five curious horizontal appendages that together form the umbraculiform cap to the flower: this cap is bright verdigris-green, pitted on the surface and formed of five confluent convex lobes with a conical central papilla, each lobe is two-lobed at its outer margin, and the margins are turned up and bear a series of transparent flat erect hairs within the border. *Staminal corona* yellow, terminating in five erect strap-shaped connivent processes with recurved apices.—*J. D. H.*

Fig. 1, Staminal corona; 2, pollini:—*both magnified.*



TAB. 5578.

CEROPEGIA SORORIA.

Kaffrarian Ceropogia.

Nat. Ord. ASCLEPIADEÆ.—PENTANDRIA MONOGYNIA.

Gen. Char. (*Vide supra*, TAB. 5306.)

CEROPEGIA *sororia*; volubilis, glabra, caule tenui, foliis anguste linearibus utrinque acutis internodiis longioribus, pedunculis axillaribus unifloris elongatis, sepalis lineari-subulatis, corollæ tubo glabro elongato, parte inferiore inflata elongata oblonga, parte superiore inferiore æquilonga cylindrica, lobis partem superiorem tubi æquantibus pendulis lineari-oblongis acutis ciliatis, coronæ stamineæ lobis exterioribus subulatis longe ciliatis, interioribus elongatis glabris.

CEROPEGIA *sororia*. *Harvey, mss.*

In the eighty-ninth volume of this work a very remarkable South African species of this genus is figured,—*C. Bowkeri*, TAB. 5407,—partaking very much of the character of this in the singular pendulous lobes of the corolla, which move with the faintest breeze, and probably are intimately connected with the function of impregnation, though how does not appear. Like many South African plants, it has large tuberous roots, though I cannot say whether, like its above-named congener, it is erect in its native country and becomes a twiner in our damper climate, having no indigenous specimen at hand to judge from. The specimen here figured was flowered by Dr. Moore, of Glasnevin, in May, 1865, from seeds sent by Mrs. F. W. Barber, from Kaffraria, and named by Dr. Harvey, who is engaged in working up the *Asclepiadeæ* for the Cape Flora. Its name, *sororia* (*sisterly*), alludes to its kinship with *C. Bowkeri*, Miss Bowker (now Mrs. Barber) having sent both species to Dr. Harvey. It has also been found by Zeyher in the Albany district.

DESCR. A slender, glabrous, rather glaucous, branching climber, with almost filiform stems and branches and long internodes. *Leaves* four to seven inches long, very narrow,
MAY 1ST, 1860.

linear-lanceolate, not half an inch broad, dark-green above, glaucous beneath. *Peduncles* axillary, solitary, about as long as the internodes, one-flowered. *Flowers* an inch and a half to two inches long, pale-green, the reflexed lobes of the corolla darker green, with a double row of transverse purple bars above, pink beneath. *Calyx-lobes* linear-subulate, not half the length of the swollen base of the corolla; *tube of the corolla* consisting of a narrow inflated lower and cylindrical upper portion of equal length, glabrous; *lobes* as long as the upper portion, linear-oblong, acute, villous and ciliated, keeled down the middle with reflexed sides. *J. D. H.*

Fig. 1. Calyx and crown of anthers, etc. 2. Pollen-masses:—*both magnified.*



(3567)

CEROPEGIA STAPELIIFORMIS. STAPELIA-LIKE
CEROPEGIA.

Class and Order.

PENTANDRIA DIGYNIA.

(Nat. Ord.—ASCLEPIADEÆ.)

Generic Character.

Corona staminea exterior abbreviata, 5-loba; interior 5-phylla, foliolis ligularibus indivisis. *Massæ pollinis* basi affixæ, marginibus simplicibus. *Stigma* muticum. *Folliculi* cylindranei, læves. *Semina* comosa. *Br.*

Specific Name and Character.

CEROPEGIA *stapeliiformis*; volubilis? aphylla ramosa, ramis teretibus dentibus mollibus spiniformibus subverticillatis, floribus 1—2 e ramis propriis brevibus, corolla limbo intus hirsuto-tomentoso laciniis liberis recurvis carinatis, lobis coronæ stamineæ exterioris brevibus emarginatis, interioris elongatis filiformibus.

CEROPEGIA *stapeliiformis*. *Hort. Kew.*

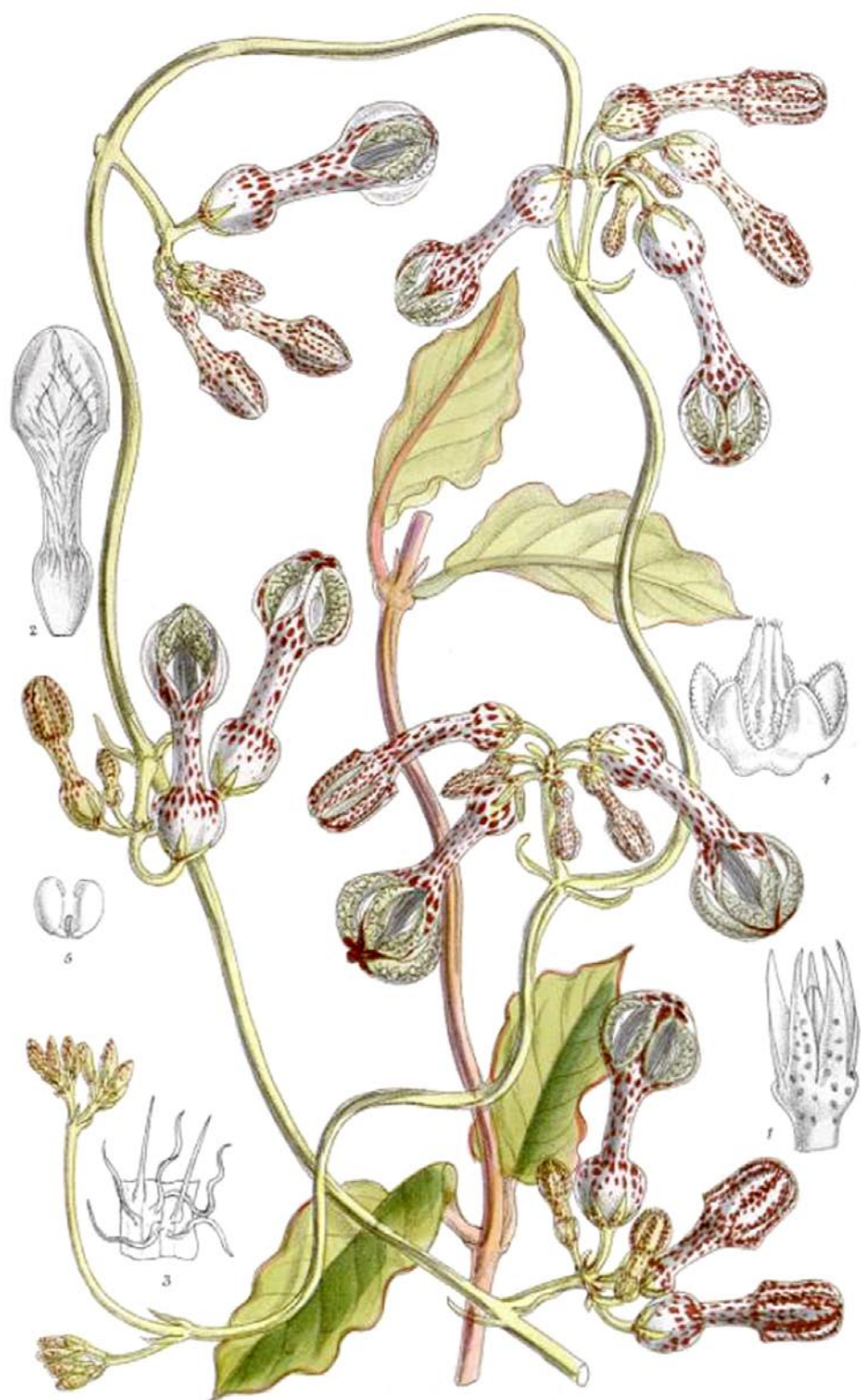
This remarkable plant is probably a native of the East Indies, and was received at the Glasgow Botanic Garden from the Royal Gardens of Kew, with the appropriate name here adopted. It flowers in the stove in April.

DESCR. *Stem*, in our plant, about the thickness of one's finger, full of a milky juice, rounded, glabrous, of a dark lurid green colour, glabrous, marked with soft, spiniform processes, three in a whorl, each with two little pots from within which the branches arise, these are long, slender, apparently climbing, of a dark purple colour, and have the soft, spine-like teeth above mentioned alternate and whorled. *Flowers* one to two from short branches. *Peduncle*

two

two to three lines long, thickened upwards. *Calyx* five-partite, the segments subulate. *Corolla* two inches long; *tube* curved, swelling below, and constricted just above the base, greenish-white, spotted above and below with deep purple: the *tube* expanded upwards to form the *limb*, which is cut into five segments, dark purple without and glabrous, white and hairy within, they soon separate, and are curved backwards, the sides are closely reflexed, so that the upper side presents a sharp keel, giving a very singular appearance to the blossom. *Staminal crown* with the exterior lobes short, erect, or slightly patent, emarginate, inner elongated, erecto-connivent, filiform.

Fig. 1. Staminal Crown:—*magnified*.



TAB. 8458.

CEROPEGIA THORNCROFTII.

Transvaal.

ASCLEPIADACEAE. Tribe CEROPEGIEAE.

CEROPEGIA, *Linn.*; *Benth et Hook. f. Gen. Plant.* vol. ii. p. 779.

Ceropegia Thorncroftii, N. E. Brown; species nova affinis *C. crispatae*, N. E. Br., sed floribus multo minoribus lobis brevioribus et intra gibboso-carinatis differt.

Herba perennis, volubilis. *Radices* fasciculatae, carnosae, 10–14 mm. crassae, albae. *Caulis* 3–4 mm. crassus, glaber. *Folia* opposita, subcarnosa, glabra, viridia; petioli 6–10 mm. longi, 2–3 mm. crassi; laminae 2·5–5·5 cm. longae, 1·2–4 cm. latae, ovatae vel elliptico-ovatae, acutae, basi rotundatae vel late cuneatae, marginibus undulatis et plus minusve crispatis. *Cymae* axillares, pedunculatae, multiflorae; pedunculi 1·5–1·7 cm. longi, 2 mm. crassi, glabri. *Bractae* minutae, 1–3 mm. longae, deltoideo-subulatae. *Sepala* 3–4 mm. longa, subulata, basi dilatata, glabra, purpureo-punctata. *Corolla* alba, purpureo-maculata, extra glabra; tubus 2·5 cm. longus, curvatus, intus pilosus, basi ellipsoideo-inflatus et 8 mm. diametro, superne 3 mm. diametro, cylindricus, fauce infundibuliformis et 8 mm. diametro; lobi 9–10 mm. longi, erecto-incurvati, apice connati, lineari-oblongi marginibus reflexis, intus ad medium gibboso-carinati et glabri, inferne parce pilosi. *Coronae exterioris* lobi adscendentes, 1 mm. longi, oblongi, subtruncati vel obtusi, fusco-purpureo-marginati, minute ciliati. *Coronae interioris* lobi 2 mm. longi, lineares, conniventes, subcohaerentes, fusco-purpurei, glabri. —N. E. BROWN.

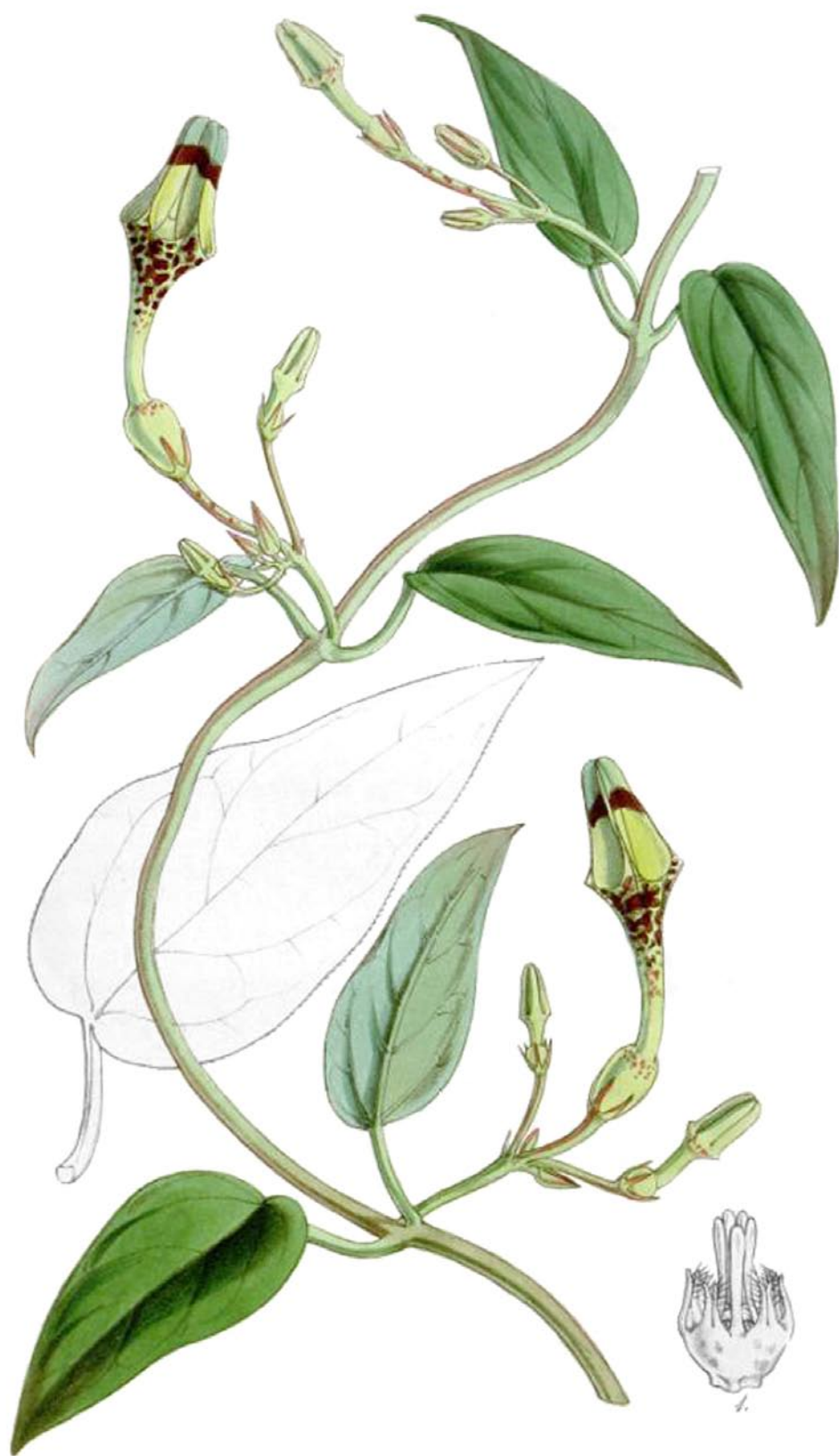
The *Ceropegia* which forms the subject of our illustration is a native of the Transvaal, where it was discovered in the neighbourhood of Barberton by Mr. G. Thorncroft, to whom also horticulture is indebted for its introduction to European collections. Plants were sent by Mr. Thorncroft to the Botanic Garden, Cambridge, where it was flowered for the first time in August, 1911, by Mr. Lynch, to whom we are indebted for the material on which our figure has been based. When it flowered it was found to be an undescribed species and has been named in honour of its discoverer. *C. Thorncroftii* closely resembles *C. crispata*, N. E. Br., not only in its habit and as regards its foliage, but also in having a cluster of thick fleshy roots instead of a tuber. But while it is nearly allied to *C. crispata*, *C. Thorncroftii* differs markedly from that species in having much smaller flowers characterised by the gibbous projection at the middle of the keel on the inner side of the

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lobes, of which there is no trace in *C. crispata*. Mr. Lynch informs us that *C. Thorncroftii* requires the usual treatment under ordinary tropical conditions of the other species of the genus except that in winter it appears to demand a rather higher temperature than the majority, and to prefer a greater degree of dryness. It has done well in the Stove, but has not succeeded in the Cactus House. The masses of fleshy roots appear to be sensitive to any excess of moisture, especially if associated with too low a temperature.

DESCRIPTION.—*Herb*, twining, perennial; roots white, clustered, fleshy, $\frac{1}{3}$ in. thick; stem about $\frac{1}{8}$ – $\frac{1}{6}$ in. thick, glabrous. *Leaves* opposite, somewhat fleshy, glabrous, green, ovate or elliptic-ovate, acute, base rounded or wide-cuneate, margin undulate and more or less crisped, 1–2 $\frac{1}{4}$ in. long, $\frac{1}{2}$ –1 $\frac{3}{4}$ in. wide; petiole 3–5 lin. long, stout. *Cymes* axillary, peduncled, many-flowered; peduncles about $\frac{2}{3}$ in. long, 1 lin. thick, glabrous; bracts minute, deltoid-subulate. *Sepals* about $\frac{1}{6}$ in. long, subulate, wide-based, glabrous, dotted with purple. *Corolla* white with purple blotches, glabrous outside; tube 1 in. long, curved, pilose within, with an inflated ellipsoid base $\frac{1}{3}$ in. across, above cylindric and only 1 $\frac{1}{2}$ lin. wide, the throat funnel-shaped $\frac{1}{3}$ in. across; lobes over $\frac{1}{3}$ in. long, erect then incurved, their tips connate, linear-oblong with reflexed edges, within gibbously keeled and glabrous at the middle, sparingly pilose below the middle. *Outer corona* with ascending oblong subtruncate or obtuse lobes $\frac{1}{2}$ lin. long, which are finely ciliate and have dark-purple margins. *Inner corona* with linear, conniving, somewhat cohering dark-purple glabrous lobes 1 lin. long.

Fig. 1, calyx; 2, vertical section of corolla; 3, hairs from inner surface of corolla; 4, corona; 5, pollen-masses:—*all enlarged*.



TAB. 4758.

CEROPEGIA THWAITESII.

Mr. Thwaites's Ceropegia.

Nat. Ord. ASCLEPIADEÆ.—PENTANDBIA DIGYNIA.

Gen. Char. (Vide supra, TAB. 4349.)

CEROPEGIA *Thwaitesii*; volubilis glabra, foliis petiolatis cordato-ovatis acuminatis, racemis 3–5-floris folio longioribus, sepalis subulatis, corollæ tubo infundibuliformi basi inflato-globoso, limbi laciniis oblongis glabris cohærentibus coronæ stamineæ foliolis externis bipartitis laciniis subulatis pilosis, interioribus lineari-spathulatis erectis glabris exteriora duplo superantibus.

Apparently a new species of the singular genus *Ceropegia*, seeds of which were received at Kew, from Ceylon, send by our friend Mr. Thwaites, in 1851. The plants flowered in September, 1853, and exhibit many points in common with *C. Cumingiana*, Dcne., figured at our Tab. 4349. The chief difference, as may be expected, lies in the flower: here the corolla being very contracted near the middle of the tube, and at base singularly and suddenly inflated; the markings and colour of the corolla too, are very different, as is the form of the staminal crown.

DESCR. The whole length of the *plant* before us is between two and three feet, moderately branched; *branches* glabrous, terete, climbing. *Leaves* opposite, on rather long *petioles*, ovate, acuminate, submembranaceous, glabrous, or only slightly ciliated at the margin, penninerved, entire, the *nerves* prominent beneath and the colour paler there. Young *stem* and foliage often tinged with red. *Petioles* nearly an inch long, terete. *Peduncles* axillary, about as long as the *petiole*, and bearing an umbellate raceme of three to five *flowers*, which are moderately large, two inches and more long, handsomely marked. *Calyx* of five, subulate, green *sepals*, tipped with red, half as long as the globose

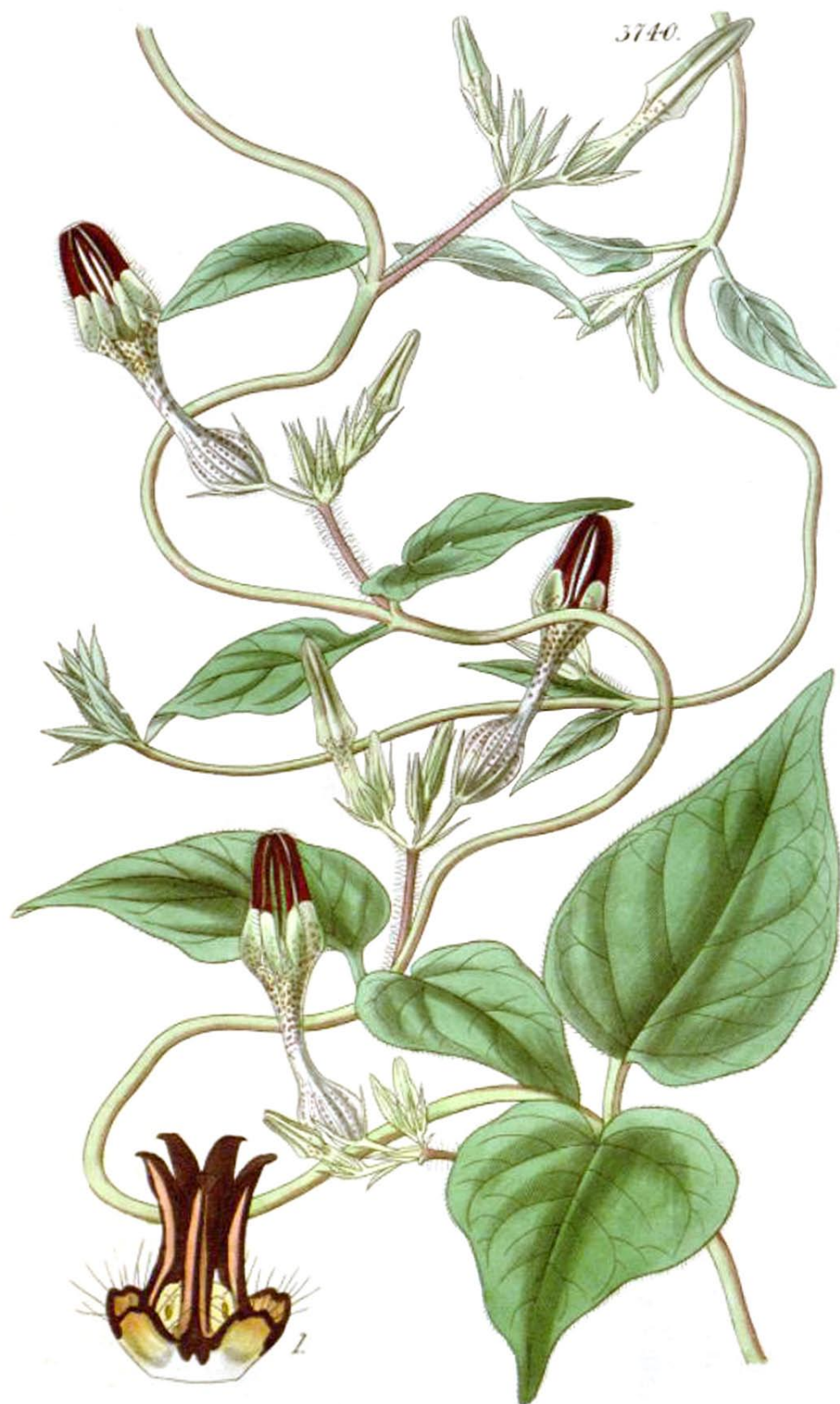
JANUARY 1ST, 1854.

base of the corolla. *Corolla* with the *tube* yellow, infundibuliform, very narrow below the middle, much inflated and almost globose at the base, dilated upwards, and there sprinkled with dark blood-red spots. *Limb* of five, oblong-ovate, obtuse *segments*, which are erecto-connivent into a cone, concave or grooved lack, yellow, with a transverse band of dark brown, almost black-purple above the middle, the tips green: *staminal crown* cup-shaped, fleshy; external *folioles* five, erect, bifid, the segments subulate, villous with long hairs; interior of five, erect, linear-spathulate, glabrous ones, twice as long as the outer.



Fig. 1. Corona staminea:—*magnified*.





CEROPEGIA VINCÆFOLIA. PERIWINKLE-
LEAVED CEROPEGIA.

Class and Order.

PENTANDRIA DIGYNIA.

(Nat. Ord.—ASCLEPIADEÆ.)

Generic Character.

Corona staminea exterior abbreviata, 5-loba; interior 5-phylla, foliolis ligularibus indivisis. *Massæ pollinis* basi affixæ, marginibus simplicibus. *Stigma* muticum. *Folliculi* cylindracei laves. *Semina* comosa. *Br.*

Specific Name and Character.

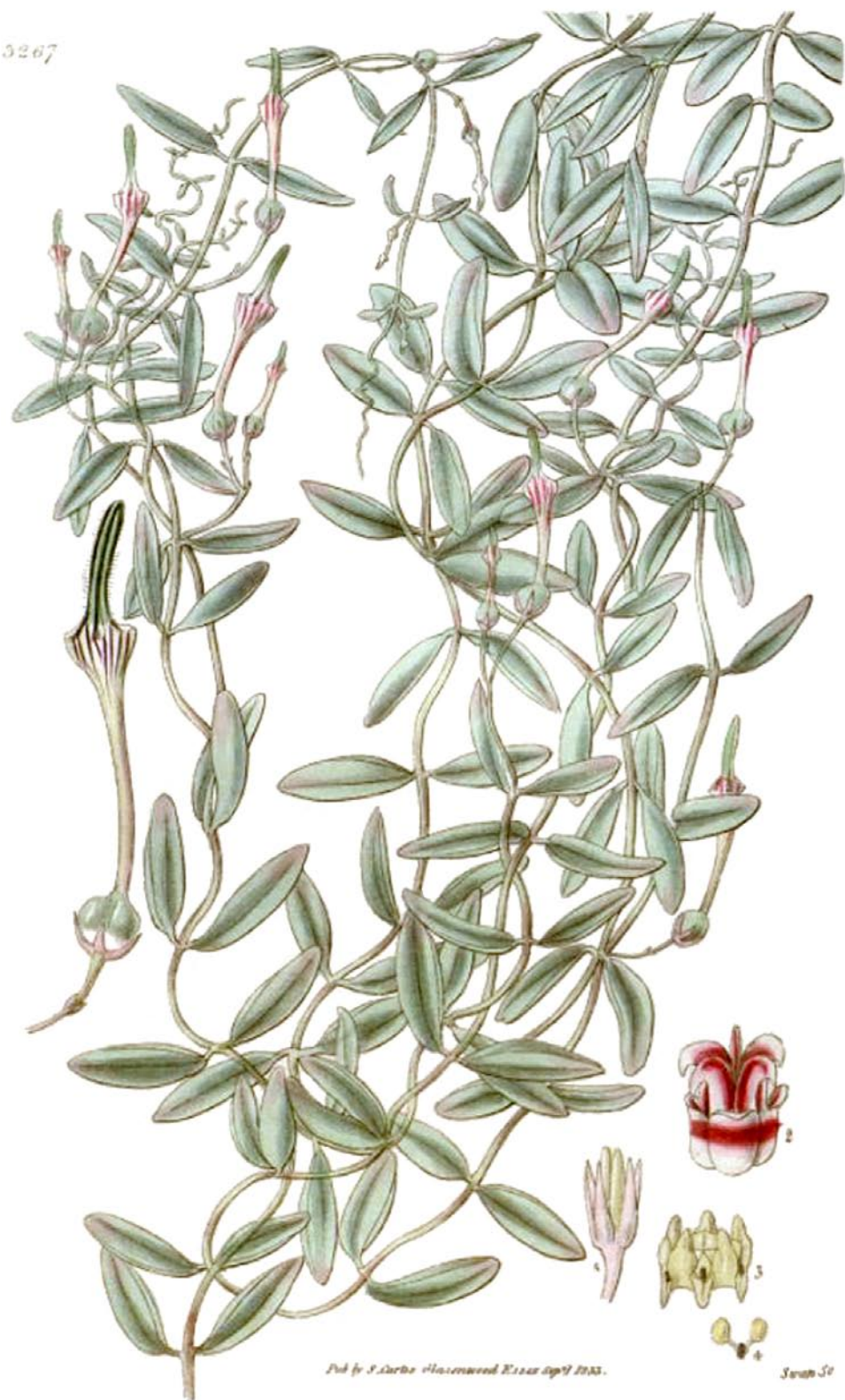
CEROPEGIA *vincæfolia*; volubilis pubescens, foliis late ovatis acuminatis brevi-petiolatis, pedunculis patenti-hirsutis 4—6-floris, corollæ tubo brevi inflato-globoso superne dilatato, limbi segmentis oblongis erecto-conniventibus intus hirsutis, lobis coronæ stamineæ exterioris brevibus emarginatis, interioris linearibus erectis apice recurvis subemarginatis.

Received from Bombay at the Glasgow Botanic Garden, by favor of J. NIMMO, Esq. It is an extremely handsome plant, with large and copious flowers, which are produced in the stove in the month of September. I do not find any described species that corresponds with it.

DESCR. *Stem* very long, the thickness of a crow-quill, twining, slightly downy, branched. *Leaves* opposite, ovate, generally broadly so, acuminate, slightly downy above and below, ciliated at the margin: *petioles* rather short and thick. *Peduncles* an inch or more long, clothed with patent hairs, bearing a *cyme* of from four to six *flowers*. *Calyx-segments* and *bracteas* subulate. *Corolla* greenish-white, variously sheathed and spotted with brown, the upper
part

part of the segments of the limb deep brownish-purple: the tube inflated and globose below, dilated above: the limb of five erecto-connivent, oblong segments, internally hairy, the margins reflexed. *Column* varied with tawny and deep chocolate-brown, outer series or ray of five short, erecto-patent, emarginate, fleshy lobes, tipped with long hairs : inner of five erect, linear, compressed segments, the apex recurved and obscurely emarginate.

Fig. 1. Column:—*magnified*.



Pub. by S. Arthur Clausenwood, Essex, Sept. 1933.

Swan 50

CEROPEGIA WIGHTII. DR. WIGHT'S
CEROPEGIA.

Class and Order.

PENTANDRIA DIGYNIA.

(Nat. Ord.—ASCLEPIADEÆ.)

Generic Character.

Calyx 5-partitus. *Corolla* basi ventricosa, lobo infundibuliformi, limbi laciniis conniventibus ligulatis. *Corona staminea* duplex (?): *interioris foliola* lobis exterioris opposita. *Antheræ* apice simplices. *Stigma* muticum. *Folliculi* cylindranei laeves. *Semina* comosa.—Suffrutices *vel* herbæ volubiles. *Wight*.

Specific Character and Synonym.

CEROPEGIA *Wightii*; volubilis glaber, radice bulbosa, foliis ovatis acutis carnosius, corolla tubo basi inflato-globoso limbi 5-fido laciniis linearibus lanuginosis approximatis, lobis corona stamineæ exterioris integris interioribus alternantibus, interioris carnosius lateraliter compressis albidis recurvis exteriori duplo longioribus. *Wight*.

CEROPEGIA *Wightii*. *Graham MSS.*

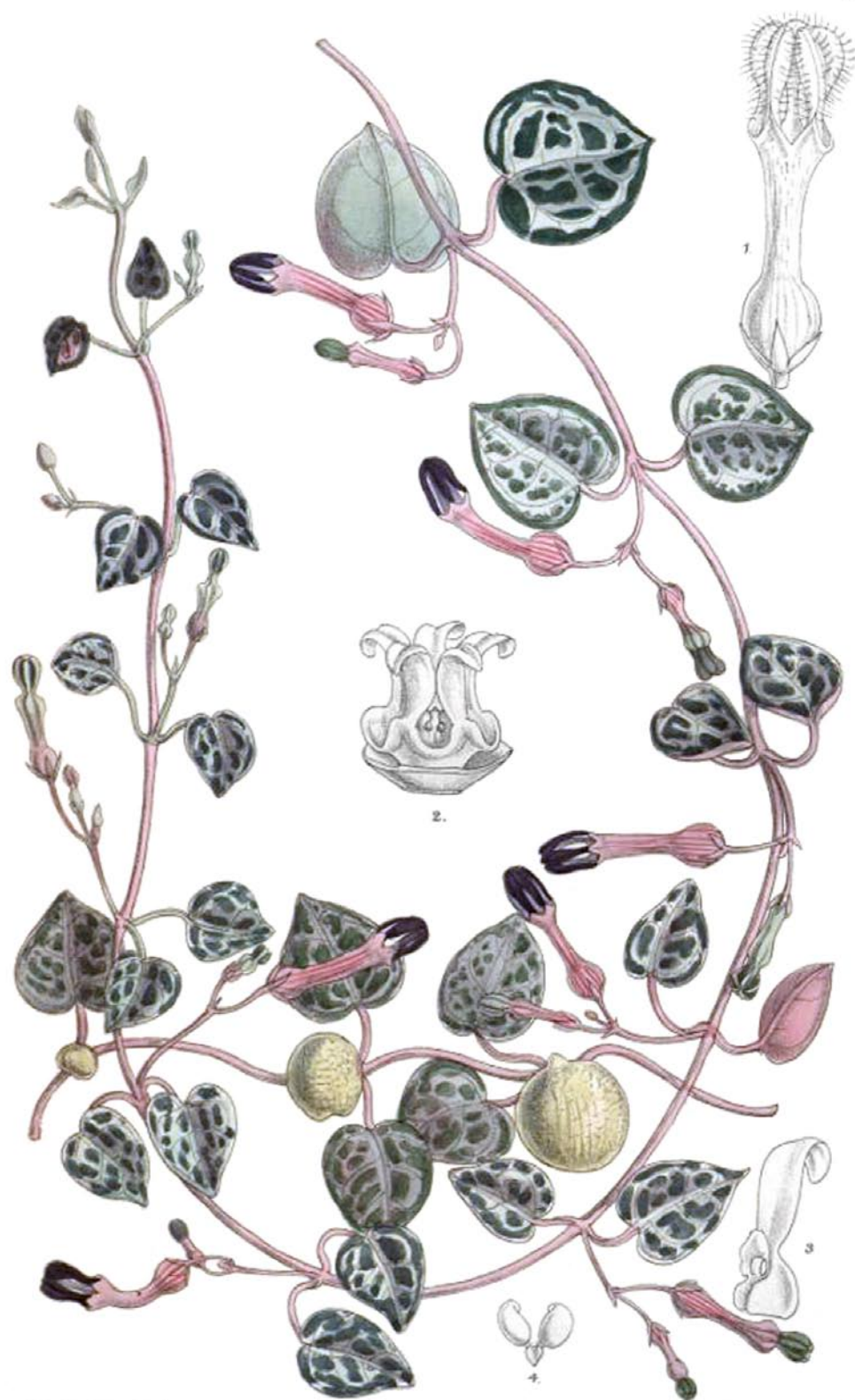
DESCR. The whole plant glabrous, twining, fleshy. *Root* bulbous. *Leaves* opposite, ovate, acute, succulent, about an inch long, three or four lines broad, and often nearly as thick. *Umbels* lateral, few-flowered. *Calyx* five-parted, laciniae acute. *Corolla* about an inch long; tube slender, globular at the base, widening at the border, five-cleft; laciniae approximated for their whole length, narrow, linear, purple, (or dark green, H.) densely woolly. Organs of *fructification* concealed in the inflated part of the tube, and surrounded by the *Corona*, the exterior lobes of which are ovate, entire, and alternate with the interior; these latter are erect, somewhat fleshy, about twice the length of the exterior series, laterally compressed, white, (stained with deep rose-colour) and from about the middle upwards curved

curved outwards, presenting a star-like appearance. Anthers obtuse, naked at the apex, two-celled: *Pollen-masses* erect, attached by the base. *Stigma* blunt. *Wight*.

This very distinct species of *CEROPEGIA* flowered this summer (1833) in the Edinburgh Botanic Garden, where it had been received from the East Indies, under the name of *C. bulbosa*. It agrees with that species in having a tuberous root, a twining, succulent stem, in the leaves, and in the form of the corolla; but is at once distinguished by the corona, which equally separates it from every other species with which I am acquainted. I would take this opportunity of calling the attention of Botanists to the form of that organ, as affording the most permanent characters for distinguishing allied species in this Genus.—In some, its interior lobes are very long, while the exterior are reduced to a narrow margin, and these appear opposite the interior, as in *C. bulbosa*, *acuminata*, and *tuberosa*, ROXB., and in another East Indian species in my Herbarium.—A second set has the exterior series in five distinct, ovate, entire, or two-cleft lobes, alternate with the interior, the interior ones more than twice their length, and hooked outwards at the point. To this section, belong *C. juncea*, ROXB. *C. Wightii*, perhaps *C. Lunda* WALL. Pl. Rarior. and two undescribed species in my Herbarium.—In a third set, all the lobes are ligulate, the exterior double the number of the interior, and nearly equalling them in length. To this section belong *C. elegans*, WALL. in Bot. Mag. and two unpublished species in my Herbarium.—A fourth set has the interior lobes long and the exterior double their number, ovate, obtuse, and scarcely the length of the column of fructification. To this section belong one unpublished species from Nepaul, (*C. Wallichii*) WIGHT in Herb. Royle, and perhaps *C. longifolia*, WALL. Pl. Rar.

In all these, the exterior lobes are at least twice as long as the interior.—In the fifth section, the interior lobes barely exceed the column of fructification, and are about one half longer than the exterior. To this section belong two unpublished species in my Herbarium. These are all that I had an opportunity of examining with reference to that point.—The species so grouped, often differ very widely in other respects, thereby producing some very unnatural combinations.

In these remarks, I have employed the terms *exterior* and *interior* series of *lobes* of the corona, from supposing that the terms *outer* and *inner corona* used by Dr. BROWN in his character of the Genus (in the Wern. Trans.) imply the presence of a double series of parts, or two verticils, a structure which does not, I think, exist. The coronal appendage is apparently a campanulate organ, often resembling in form, the limb of the corolla, the ligulate divisions of which represent the interior series of lobes, while the intermediate, ventricose portions represent the exterior. Taking this view of its structure, I infer, that the organ is composed of a single verticil of five leaves, the lamina of which are more or less united, while the costæ are each prolonged into an acumen. The acumen forms the inner lobes, while the lamina more or less developed, form the outer series. If this be correct, it would appear that the corona of *CEROPEGIA*, and perhaps of the whole Order ASCLEPIADEÆ is analogous to the antheriferous tribe of MELIACEÆ, and may form a link between these otherwise very distant Orders. *R. Wight*.



M.S. det. J.H. Pritch. lith.

Vincent Brooks, Day & Son, Lith.

L. Reeve & Co. London.

TAB. 7704.
CEROPEGIA WOODII.
Native of Natal.

Nat. Ord. ASCLEPIADEÆ.—Tribe CEROPEGIÆ.

Genus CEROPEGIA, Linn.; (*Benth. & Hook. f. Gen. Plant.* vol. ii. p. 779.)

CEROPEGIA *Woodii*; herba tuberosa, glabra, ramis gracillimis decumbentibus vel pendentibus ad nodos sæpe tuberiferis, foliis petiolatis $\frac{1}{2}$ –1 poll. longis et latis late cordato-ovatis vel orbiculari-reniformibus acutis vel obtusis carnosius supra albo-venosis, cymis axillaribus pedunculatis 2–3-floris, pedicellis 3–3 $\frac{1}{2}$ lin. longis, sepalis $\frac{3}{4}$ lin. longis lineari-lanceolatis acutis, corollæ tubo 7–9 lin. longo basi globoso-inflato superne cylindrico ore leviter infundibuliformi rubro-purpureo lineato, lobis erectis apice coherentibus angustis replicatis ciliatis atro-purpureis, coronæ exterioris breviter cupuliformis lobuli integris, coronæ interioris lobis linearibus vel lineari-lanceolatis apice recurvis acutis.

C. *Woodii*, *Schlechter in Engl. Bot. Jahrb.* vol. xviii., Beibl. No. 45, p. 34; and vol. xx., Beibl. No. 51, p. 49. *Gard. Chron.* 1897, vol. ii. pp. 357, 358, fig. 104.

This pretty species of *Ceropegia* was discovered by Mr. J. Medley Wood, the energetic Curator of Durban Botanic Gardens, in February, 1881, hanging from rocks on Groen Berg, Natal, at an altitude of about one thousand eight hundred feet. In 1894 Mr. Wood sent a living plant of it to Kew, and subsequently it has been introduced into other establishments. It seems to be nearest allied to *C. africana*, Br., and *C. Barkleyi*, Hook. f. (*Bot. Mag.* t. 6315), but is a much more slender and more elegant plant than either of these. It is admirably adapted for basket culture, as it produces a profusion of slender stems which hang gracefully down on all sides, and are well furnished with small variegated leaves. It flowers freely, and ripens fruit under cultivation. The accompanying figure was made from plants cultivated in the Botanic Garden at Cambridge, and in the Royal Gardens, Kew. It flowers under cultivation from February to November.

DESCR.—Glabrous in all parts except the corolla. *Root-stock* tuberous, fleshy. *Stems* numerous, pendent, or trailing on the ground, slender, often producing globose tubers at the nodes. *Leaves* opposite, fleshy, one-third of

MARCH 1ST, 1900.

an inch to one inch long, and as much in breadth, on petioles two to six lines long, varying from broadly cordate-ovate to orbicular-reniform, acute or obtuse, apiculate, dark green, reticulate, variegated with white above, pale green beneath. *Cymes* axillary, pedunculate, two- or three-flowered. *Peduncle* two to five lines long. *Bracts* minute. *Pedicels* about a quarter of an inch long. *Sepals* three-quarters of a line long, linear-lanceolate, acute. *Corolla* slightly curved; tube seven to nine lines long, globosely inflated at the base, cylindric above, slightly dilated into a funnel-shaped mouth at the apex, streaked with purple; lobes three to three and a half lines long, erect, cohering at the tips, narrowly spatulate from a deltoid base, replicate, blackish-purple, ciliate with purple hairs. *Outer corona* shortly cupular, with five short, obtuse, pocket-like lobules, white. *Inner coronal-lobes* linear or linear-lanceolate, acute, connivent-erect, recurving at the apex, adnate at the base to the outer corona, white.—N. E. Brown.

Fig. 1, corolla; 2, corona; 3, one of the inner coronal-lobes attached to a stamen; 4, pollen-masses:—*All enlarged.*



COTYLEDON CRENATA. SCOLLOP-LEAVED
NAVEL-WORT.

Class and Order.

DECANDRIA PENTAGYNIA.

Generic Character.

Cal. 5-fidus (modo 4-fidus). *Cor.* 1-petala. *Squamæ* nectariferæ 5, ad basin germinis. *Capf.* 5 (modo 4).

Specific Character and Synonyms.

COTYLEDON *crenata*; foliis decussatis obtusis crenatis carnosissimis, floribus cymoso-paniculatis erectis quadrifidis. *Venten. Malmaif.* 49. *Hort. Kew. ed. alt. v. 3. p. 110.*

VEREA *crenata*; foliis oppositis patentibus, racemis longissimis laxis, floribus luteis. *Bot. Repos.* 21. *Willd. Sp. Pl.* 2. p. 471.

CALANCHOE *Verea*. *Persoon Syn.* 1. p. 446. a.

KALANCHOE. *Adanson Fam. de Pl.* 2. p. 548.

This succulent shrub, native of Sierra Leone, whence it was introduced by our friend Professor ADAM AFZELIUS, and, under the supposition of its being an undescribed genus, was named by Mr. ANDREWS in honour of JAMES VERE, Esq. a great encourager of botanical science. But if it can be properly separated from COTYLEDON, being undoubtedly a congener of COTYLEDON *laciniata*, of which ADANSON, in his Familles des Plantes, long ago constituted a genus, it must take his name of KALANCHÖE. DECANDOLLE, a French botanist, and PERSOON, have adopted this division; but M. VENTENAT has followed LINNÆUS, who considered his COTYLEDON *laciniata* as belonging to the genus, though curtailed of one-fifth in the number of all the parts of fructification.

It

It is not improbable, however, that had he known there were half a dozen species in the same predicament, he would have himself made a separation, so congenial with his classification.

In the new edition of the Hortus Kewensis, both this plant and BRYOPHYLLUM of SALISBURY, No. 1409 of this work, are retained with COTYLEDON; BRYOPHYLLUM is, however, in our opinion, very distinct, not only in the number of the parts of fructification, but likewise in the form of the corolla, the relative proportion of the calyx and it, and especially in having the stamens arranged in one rank.

The original imported plant bore leaves many times the size of those in our figure, and more irregularly scolloped, but succeeding ones have not attained to the same vigorous growth.

Our drawing was made at the late Right Honourable Mr. GREVILLE's, at Paddington. Propagated by cuttings. Requires to be kept in the dry stove, or in an airy part of the common hot-house. Flowers from May through the summer. Cultivated by Mr. WILLIAM ANDERSON, in 1793.



(2044)

COTYLEDON CURVIFLORA. BENT-FLOWERED
NAVELWORT.

Class and Order.

DECANDRIA PENTAYNIA.

Generic Character.

Cal. 5-fidus. *Cor.* 1-petala. *Squamæ* nectariferæ 5, ad basin germinis. *Caps.* 5.

Specific Character.

COTYLEDON *curviflora*; fruticosa, foliis semicylindricis sparsis, floribus paniculatis nutantibus, calycibus laxis, tubo corollæ pentagono incurvo.

COTYLEDON *purpurea*; foliis lineari-oblongis carnosis glabris, floribus paniculatis. *Thunb. prodr.* 83 ?

The COTYLEDON *curviflora* appears to us to be an undescribed species, unless it should be THUNBERG's *purpurea*, which does not seem very probable, because neither the flowers nor leaves are of that colour. There is a species figured by BURMANN which has flowers not unlike those of our plant, but which are said to be erect, and the flowering stem is represented to be pubescent.

The stem is fleshy, rough with the vestiges of former leaves. From the extremities of the thick branches shoot straight, rounded, smooth, flowering stems, clothed with scattered fleshy, linear, semicylindrical leaves, and bearing a few flowered panicle at the extremity. The peduncles are twisted in a fantastical manner. *Calyx* large, lax, of five unequal fleshy leaflets. *Corolla* tubular, yellow, streaked with red: *tube* above an inch long, curved, somewhat inflated upwards,

upwards: limb not a third part the length of the tube, 5-cleft: laciniae acute, reflexed but not rolled back. *Filaments* thickened at the base, vilous. Styles longer than the stamens.

Communicated by Messrs. WHITLEY, BRAMES, and MILNE, in October. Native of the Cape of Good-Hope, from whence it was brought two years ago by Mrs. STUART, on her passage from the East-Indies.



COTYLEDON DECUSSATA. CROSS-LEAVED
COTYLEDON.

Class and Order.

DECANDRIA PENTAYNIA.

Generic Character.

Cal. 5-fidus. *Cor.* 1-petala. *Squamæ* nectariferæ 5, ad basin germinis. *Caps.* 5.

Specific Character and Synonyms.

COTYLEDON *decussata*; fruticosa, foliis concinne decussatis subteretibus mucronatis glaucis, floribus paniculatis pendulis.

COTYLEDON *papillaris*; farinoso-alba, foliis concinne decussatis oppositis numerosis oblongo-cuneatis teretibusve vel subclavatis acutis, subhorizontalibus; pagina superiore depressa. *Haworth Suppl. Pl. Succ. p.* 21.— vix *C. papillaris* Thunbergii.

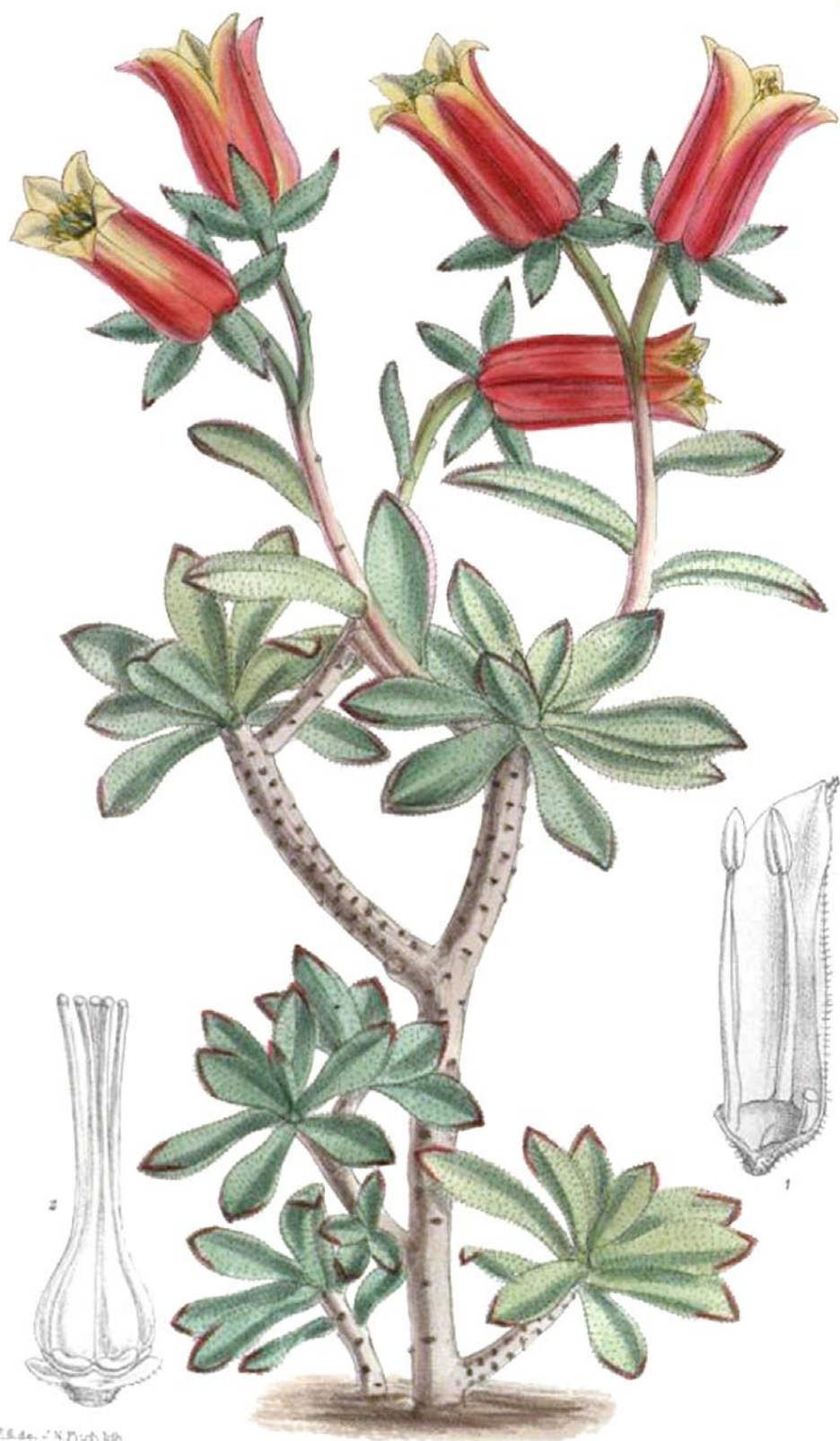
COTYLEDON foliis angustis oppositis cum limbo purpureo, floribus pendulis. *Burm. Afr. n.* 54. *t.* 22. *f.* 1.

DESCR. *Stem* shrubby, erect, but very little branched. *Leaves* opposite crosswise, sessile, fleshy, nearly cylindrical, somewhat flattened on the upper side, glaucous, or even hoary, narrowed at both ends, varying somewhat in shape, and terminated with a dark purple mucro. *Common peduncle* terminal, erect, smooth, half a foot long, purple, nearly naked, or furnished with a pair of smaller leaves only, terminated in a panicle of many pendulous, red flowers. *Calyx* five-toothed, four times shorter than the tube of the corolla. *Corolla* large, shewy, red: *tube* cylindrical, nearly an inch long: *limb* half the length, divided into five *laciniæ* rolled back. *Stamens* ten, exserted:
filaments

filaments pass through a hairy ring near the bottom of the tube: *Anthers*, before the flower opens, upright, with four grooves. *Styles* 5, rather longer than the stamens: *stigmas* lobular, villous. *Nectaries* five concave scales, one at the base of each germen.

There can be no doubt but this is the *COTYLEDON papillaris* of HAWORTH, but this author himself doubted of its being the *papillaris* of THUNBERG. At the time he wrote his Supplement, there was no possibility of coming to a certain decision in this respect, from the very insufficient specific character given in the Prodrômus; but since the publication of the Flora Capensis, it is evident that our plant cannot belong to that species, which is there described, as having a herbaceous decumbent stem, and very much smaller leaves and flowers, with the limb of the corolla equal in length to the tube. BURMAN's figure and description, quoted by HAWORTH, however imperfect, evidently apply to our plant. as this figure is not quoted to any other species, and the description of no recorded one corresponds, we are constrained to apply to it a new specific name, that of *papillaris* being, as above-stated, already pre-occupied. We have accordingly given one from the striking decussate position of the leaves.

This very rare and beautiful species of *COTYLEDON*, was kindly communicated to us in June last, by Mr. Hoop, Surgeon, South Lambeth, who possesses a fine collection of rare succulent plants, which he cultivates with great success.



W. E. D. & N. P. & H. L. H.

W. E. D. & N. P. & H. L. H.

L. Reeve & Co. London

TAB. 7993.

COTYLEDON ELEGANS.

Mexico.

CRASSULACEÆ.

COTYLEDON, *Linn.*; *Benth. et Hook. f. Gen. Plant.* vol. i. p. 659; *Engler & Prantl, Pflanzenfam.* vol. iii. 2, A, p. 32.

Cotyledon (§ *Echeveria*) **elegans**, *N. E. Brown*; species distinctissima, indumento et pedunculis 1- vel 2-floris facile distinguitur.

Suffrutex succulentus, ramosus, usque 20 poll. altus, omnino pubescens. *Folia* laxè rosulata, sessilia, spathulato-oblongata, acuta, $\frac{2}{3}$ – $1\frac{1}{4}$ poll. longa, $\frac{1}{4}$ – $\frac{1}{2}$ poll. lata, $\frac{1}{6}$ poll. crassa. *Pedunculi* infra folia oriundi, $2\frac{1}{2}$ –6 poll. longi, paucifoliati, apice 1- vel 2-flori. *Sepala* inæqualia, patentissima, lanceolata, acuta. *Corolla* circiter 1 poll. longa, erecta, tubuloso-campanulata, pentagona, extra coccinea, intra flava; segmenta fere ad basin libera, lineari-oblonga, acuta, dorso carinata, basi leviter gibbosa, apice recurva. *Stamina* inclusa, pallide lutea, glabra; filamenta filiformia, glabra. *Glandulæ hypogynæ* brevissimæ, transversæ, truncatæ. *Carpella* corollæ subæquilonga, glabra.—*Oliverella elegans*, *Rose* in *Bull. New York Bot. Gard.* vol. iii. p. 2.

This most distinct and handsome species was found in August, 1901, in cultivation at Amacamaca, near the City of Mexico, by Dr. J. N. Rose, of the United States National Herbarium at Washington, and a plant was sent by him in 1903 to Kew, where it flowered in June, 1904. The specimen figured is a young plant; in the adult state it is of a much larger size. *C. elegans* is one of the very few species of *Cotyledon* that are pubescent, and this character, in conjunction with its one- or two-flowered peduncles, readily distinguish it from all others. Although the peduncles bear so few flowers, their large size and brilliant colour make it one of the most attractive species yet introduced. Like most of its Mexican congeners, this species belongs to the section *Echeveria*, and although Dr. Rose has published it under a new generic name, I can find nothing, either in habit, vegetative organs, or floral structure, whereby it can be generically separated.

Descr.—A suffruticose, succulent perennial, branching from the base upwards, one to two feet high; branches, leaves, peduncle, calyx, and outside of the corolla softly and minutely pubescent. *Branches* a quarter to a third of an inch thick. Leaves in small, lax, terminal rosettes,
JANUARY 1ST, 1905,

spreading, sessile, two-thirds to one inch and a quarter long, one-third to half an inch broad, one-sixth thick, spathulate-ob lanceolate, acute, flat above, convex beneath, light green, tips tinged with red. *Peduncles* arising below the rosettes of leaves, two to six inches long, bearing a few scattered, spreading leaves, which soon fall away, one- or two-flowered; pedicels half to one inch long. *Flowers* sub-erect. *Sepals* unequal, spreading, linear-lanceolate, four to six or seven lines long, about two lines broad, acute, light green. *Corolla* about an inch long, and half an inch in diameter, tubular-campanulate, five-angled, bright, clear red, or almost scarlet outside, light yellow within; segments free almost to the base, but closely overlapping, oblong, acute, recurved at the apex, slightly gibbous at the base, acutely keeled down the back. *Stamens* inserted a little above the base of the corolla, included, filaments rather stoutly filiform, not dilated at the base, pale yellow, glabrous; anthers pale yellow. *Hypogynous glands* very short, broader than long, truncate. *Carpels* about an inch long, shortly ovoid at the base, tapering into long styles, pale yellow below, greenish above, with brown stigmas.—N. E. BROWN.

Fig. 1, portion of corolla and two stamens; 2, pistil and two hypogynous glands:—*all enlarged*.



W. Pach. del. et lith.

Vincent Brooks, Imp.

COTYLEDON FASCICULARIS.

Glaucous-blue Cotyledon.

Nat. Ord. CRASSULACEÆ.—DECANDRIA PENTAGYNIA.

Gen. Char. Calyx 5-partitus, *corollæ* tubo æqualis v. brevior. *Petala* 5, sæpius ad medium connata, erecta v. patentia. *Stamina* 10, rarissime 5, petalis sæpius breviora. *Squamulæ* variæ. *Ovarii* carpella 5, in stylos filiformes attenuata, stigmatibus parvis; ovula ∞ . *Folliculi* 5, ∞ -spermi.—*Herbæ* v. frutices, *raro annuæ*, *ramis foliisque sæpius crassis, sed habitu valde variæ*. Folia *opposita* v. *alterna*, *petiolata* v. *sessilia*.

COTYLEDON *fascicularis*; glaberrima, pallide albo-virens, glauca, foliis sparsis sessilibus cuneato-obovatis cuspidatis planiusculis crassis, paniculam ramis elongatis scorpioideis, floribus magnis pedicellatis pendulis, calycis lobis brevibus late ovatis acutis, corolla tubo calyce multo longiore subcylindraceo, lobis reflexis lineari-oblongis acutis.

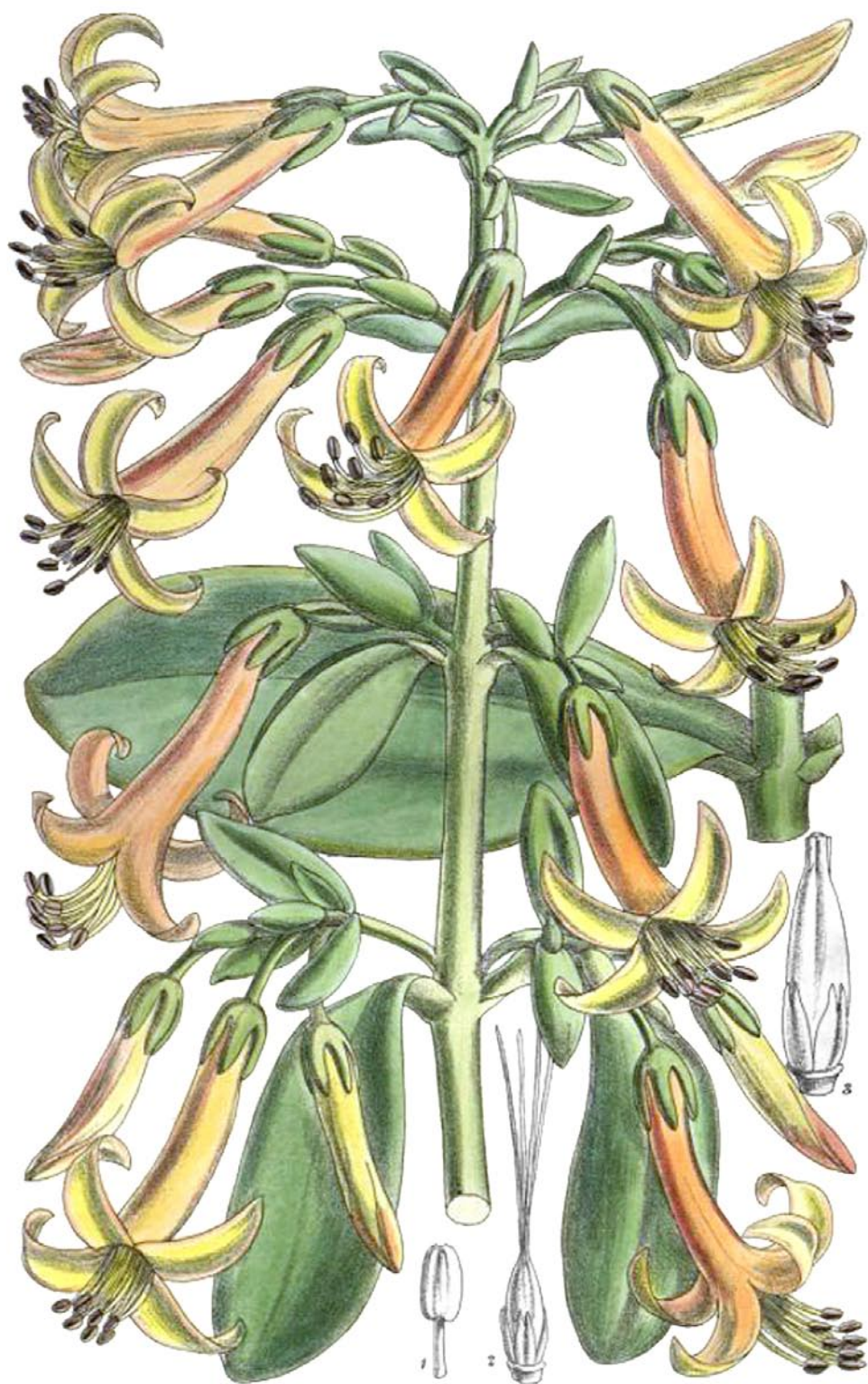
So far as these plants can be determined by descriptions, this appears without doubt to be the *Cotyledon fascicularis* of Aiton, and it further agrees with an unnamed drawing made many years ago at Kew of a *Cotyledon* that existed in the Garden at the date of the publication of 'Hortus Kewensis.' It is a beautiful plant, a native of South Africa, from whence the specimen here figured was sent by Mr. Cooper, to our friend W. W. Saunders, Esq., F.R.S., of Reigate, in whose fine collection of succulent plants it flowered in May 1865. The habitats assigned in Harvey and Sonder's 'Flora Capensis' are chiefly in the Karroo districts.

DESCR. A glaucous very pale green erect shrub, one to two feet high, quite glabrous. *Leaves* scattered, two to three inches long, sessile, broadly obovate-cuneate, cuspidate, fully one-third of an inch in thickness, slightly concave, very pale glaucous-green, with a yellowish margin. *Flower-stalk* ten to twenty inches high, stout, terete, erect, paniculately branched; *branches* erecto-patent, with scorpioid inflorescence. *Bracts* on the stem few, small, half an inch long, oblong,

OCTOBER 1ST, 1866.

acute. *Flowers* pedicillate, pendulous, one inch long. *Calyx-lobes* broadly ovate, acute. *Corolla* puberulous, five to six times longer than the sepals, cylindrico-campanulate, with five reflexed linear-oblong lobes; *tube* yellow-green and dull red; *lobes* dull red with green margins. *Stamens* ten, included; *filaments* pubescent at the very base. *Squamulæ* connate with the base of the ovary, short, concave —J. D. H.

Fig. 1. Base of corolla and stamens. 2. Carpels and squamulæ. 3. Transverse section of carpels:—*all magnified*.



M.S. del. J.N. Fitch lith.

Vincent Brooker, Day & Son, Lith.

L. Reeve C^o London.

TAB. 8036.
COTYLEDON INSIGNIS.
Nyasaland.

CRASSULACEA.

COTYLEDON, Linn.; *Benth. et Hook. f. Gen. Plant.* vol. i. p. 659; *Engl. & Prantl, Pflanzenf.* vol. iii. 2 A, p. 32.

Cotyledon insignis, N.E. Br. (sp. nov.); inter species floribus majoribus, foliis oppositis et cymis axillaribus distinctissima.

Planta succulenta, 2 ped. alta, omnino glabra, floribus exceptis ex toto viridis. *Folia* opposita, breviter petiolata, recurva, 3–5 poll. longa, 1–2 poll. lata, oblonga vel oblanceolato-oblonga, obtusa, basi angustata, integra vel obscure dentata. *Cymæ* axillares et terminales, pedunculata, 1–3-floræ. *Bracteæ* $\frac{1}{2}$ –1 poll. longa, $\frac{1}{4}$ – $\frac{1}{2}$ poll. lata, lanceolata vel oblongo-lanceolata, acute. *Pedicelli* 6–9 lin. longi. Calyx 4–5 lin. longus, 4-lobus; lobi erecti, 3–4 lin. longi, lanceolati, acuti. *Corollæ* tubus circiter $1\frac{1}{2}$ poll. longus, leviter curvatus, rubescens; lobi recurvi, 7–8 lin. longi, circiter $\frac{1}{4}$ poll. lati, lanceolati, acuti, luteo-virentes, rubescentes, dorso rubri. *Stamina* exserta; *antheræ* oblongæ, rubescentes. *Glandulæ* hypogynæ 3 lin. longæ, elongato-ovatæ, apice bifidæ. *Carpella* 4; styli filiformes, exserti.

This fine *Cotyledon* is one of the most distinct in the genus, differing in habit from all other known species. Its flowers have some resemblance to those of *C. curviflora*, Sims (B. M. t. 2044), but in all other respects it is entirely different. It was discovered on one of the mountains of Nyasaland, British Central Africa, at an altitude of 7000 feet, by Mr. John Mahon, who sent seeds of it to Kew in 1898, where it first flowered in February of this year. It requires cool stove treatment, similar to that given to the various species of *Kalanchoe*.

Descr.—A succulent plant about two feet high, glabrous on all parts. *Stems* or branches erect, about half an inch thick, light green, not glaucous. *Leaves* opposite, much recurved, three to five inches long, one to two inches broad, one to one line and a half thick, oblong or oblanceolate-oblong, obtuse, cuneately narrowed into a short petiole at the base, entire or obscurely dentate, flat, with the midrib faintly channelled above, slightly prominent beneath, green, somewhat shining, not glaucous. *Cymes* from the axils of the upper leaves and terminal, pedunculate, one- to three-flowered. *Peduncles* two to ten lines long. *Bracts* half to one inch long, $\frac{1}{4}$ – $\frac{1}{2}$ inch

SEPTEMBER 1ST, 1905.

broad, leaf-like, lanceolate, or oblong-lanceolate, acute. *Pedicels* two-thirds to three-quarters of an inch long, green. *Calyx* four to five lines long, deeply four-lobed, glabrous, green, shining, lobes 3–4 lines long, erect, lanceolate, acute, convex on the back. *Corolla-tube* about one inch and a half long, $\frac{1}{4}$ inch in diameter, obscurely four-angled, slightly curved upwards, light reddish; limb slightly oblique, four-lobed; lobes seven to eight lines long, about 4 inch broad, lanceolate acute, much recurved, light red on the back, and more or less suffused with light red on a yellowish-green ground on the inner face. *Stamens* eight, much exserted; filaments faintly tinted with red, adnate to the corolla, in two sets of four, for one half and three-quarters of its length respectively, four of them dilated, and forming broad lanceolate plaits at the base of the corolla-tube; anthers oblong, reddish. *Hypogynous* glands 4 inch long, elongate-ovate, narrowed above, bifid at the apex, light green with yellowish tips. *Carpels* four; ovary half an inch long, green, tapering into filiform exserted styles, a little more than an inch long, yellowish-green; stigmas simple.—N. E. BROWN.

Fig. 1, anther; 2, hypogynous glands and pistil; 3, the same larger without the styles:—*all enlarged*.



TAB. 6020.

COTYLEDON MAMILLARIS.

Native of Namaqualand.

Nat. Ord. CRASSULACEÆ.

Genus COTYLEDON, Linn.; (*Benth. and Hook. f. Gen. Pl.*, vol. ii. p. 659.)

COTYLEDON *mamillaris*; glaberrima, caule crasso elongato parce ramoso ramis paucis pallide rufis apicibus decurvis laxe foliosis, foliis crassis laxis horizontalibus fusiformibus teretibus acutis glaucis basi in petiolum crassum brevem cylindraceum contractis lævibus, spica terminali elongata pendula simplici rachi cylindracea fusco-rubra, floribus $\frac{1}{2}$ -pollicaribus in fasciculos 3-floros sparsos dispositis horizontaliter divaricatis, bracteolis minutis, calyce parvo viridi hemispherico 5-dentato, corolla rubro-purpurea tubo elongato 5-gono angulis costatis, limbo parvo patenti-recurvo breviter 5-lobo, lobis saturate rubris undulatis caudato-acuminatis, squamulis minutis orbiculatis emarginatis, ovariis angustis.

COTYLEDON *mamillaris*, Linn. *f. Suppl.*, p. 242; *Thunb. Flor. Cap.*, p. 397; *DC. Prodr.*, vol. iii. p. 398; *Harv. and Sond. Flor. Cap.*, vol. iii. p. 377.
C. *filicaulis*, *Eckl. and Zeyh. jid. Hare.*, Lc.

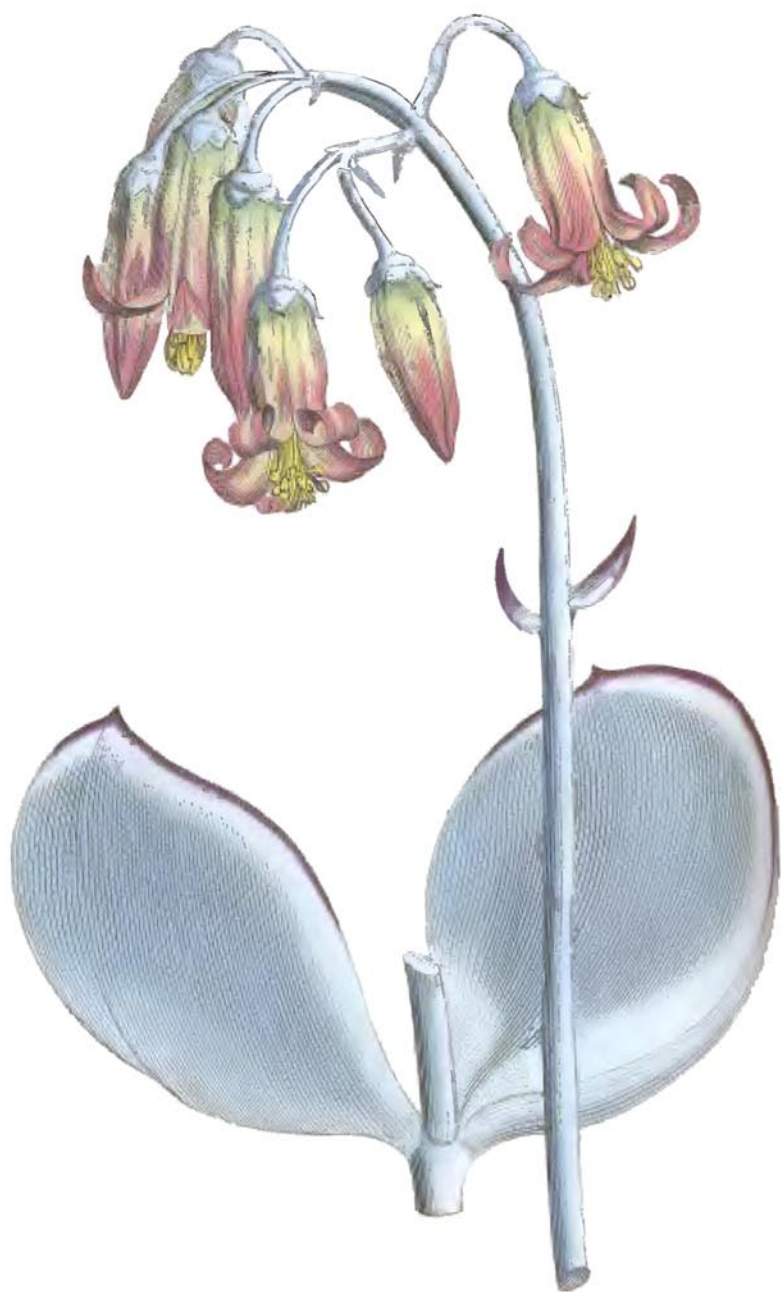
A native of the arid western districts of the Cape region, which contains so many of the most peculiar forms of South African vegetation, and whence the dry stoves of our grandfathers were supplied with the majority of those curious, interesting, and often singularly beautiful succulents that are now all but banished from cultivation. Of the genus *Cotyledon* there are three-and-twenty South African species alone described in Harvey's and Sonder's Flora, of which twelve were in 1811 cultivated at Kew, where there are now eighteen.

DESCR. Quite glabrous. *Stem* one to two feet high (branched, creeping and rooting, according to Thunberg), ascending in our specimen, and sparingly branched, pale red-brown, as thick as the middle finger, fleshy, covered with the
FEBRUARY 1ST, 1873.

prominent scars of fallen leaves, tips decurved. *Leaves* scattered, two to two and a half inches long, horizontal or ascending, spindle-shaped, pointed, contracted at the base into a short, stout, swollen petiole, quite cylindric on a transverse section, succulent, terete, quite smooth, pale, very glaucous green, nerveless. *Spike* a foot long, terminal, slender, pendulous; peduncle and rachis dark chestnut-brown, cylindric. *Flowers* two-thirds of an inch long, in scattered fascicles of three, spreading horizontally from the rachis and divaricating from one another, quite sessile. *Calyx* green, hemispheric, with two minute bracts at the base, shortly 5-toothed. *Corolla-tube* dull red-brown, half an inch long, tubular, with 5-ribbed angles, contracted at the mouth; limb dull red-brown, a quarter of an inch in diameter, spreading and reflexed, 5-lobed; lobes shallow, undulate, with a long subulate point. *Scales* minute, orbicular, notched. *Ovaries* long, slender.—*J. D. H.*

Fig. 1, Whole plant:—*diminished*; 2, flower and bracts on portion of rachis; 3, flower removed; 4, ovaries and scales:—*all magnified*.

N 321



Pub. by W. Curtis S^t Geo. Crescent Dec. 1. 1795.

Edwards del. *uniquem*

COTYLEDON ORBICULATA. ROUND-LEAVED
NAVEL-WORT.

Class and Order.

DECANDRIA PENTAGYNIA.

Generic Character.

Cal. 5-fidus. *Cor.* 1-petala. *Squamæ* nectariferæ 5 ad basin
germinis. *Capf.* 5.

Specific Character and synonyms.

COTYLEDON *orbiculata* foliis orbiculatis carnosissimis planis
integerrimis, caule fruticoso. *Linn. Syst.*
Veg. ed. 14. *Murr. p.* 428. *Ait. Kew. var. δ*
v. 2. p. 106.

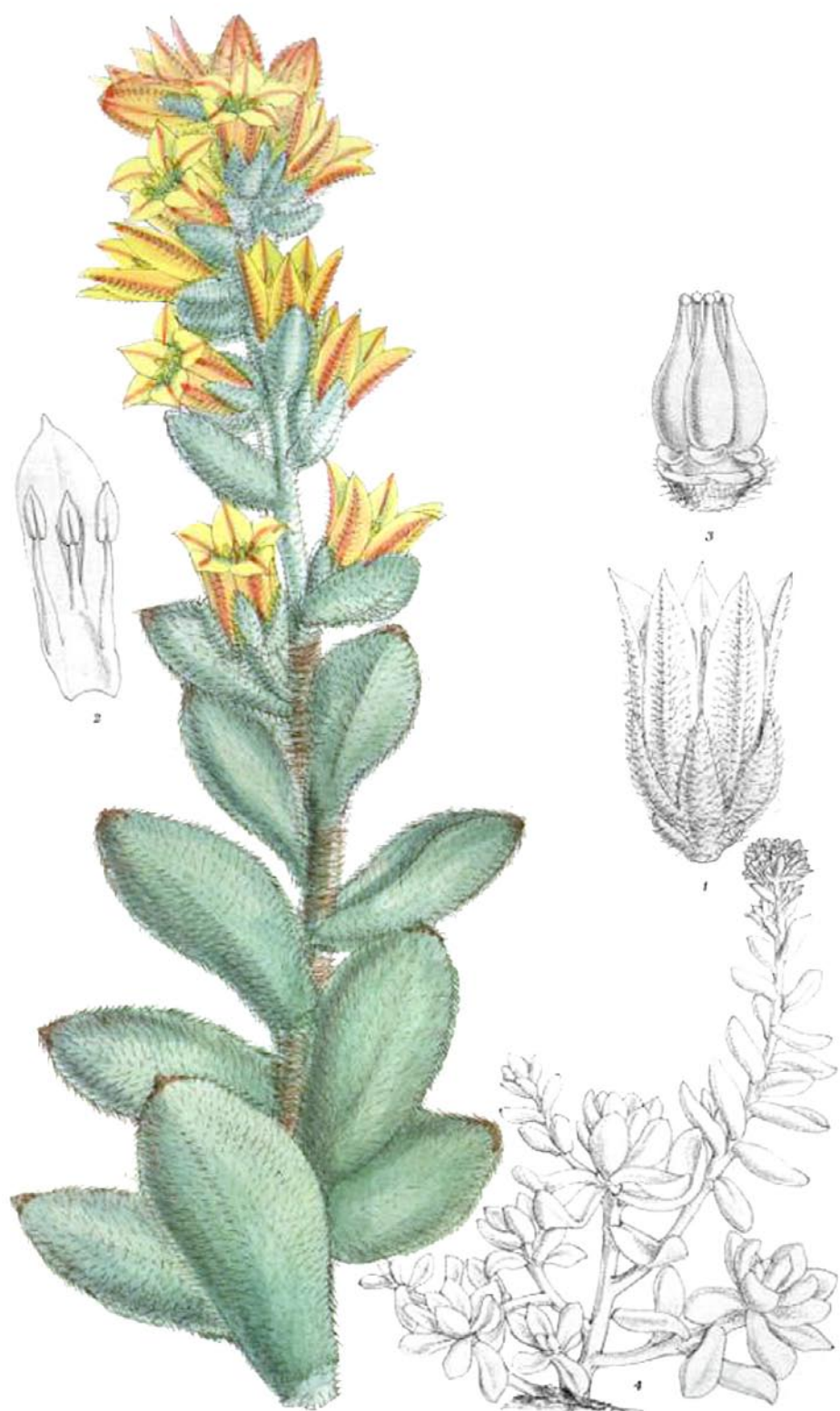
COTYLEDON *africanum* frutescens incanum orbiculatis
foliis. *Herm. Lugd.* 349. *t.* 551. *Morif. Hist.*
3. p. 474. *f.* 12. *t.* 7. *f.* 39.

The *cotyledon orbiculata* is one of our oldest succulents, being introduced as long since as 1690, by Mr. BENTICK*: it still retains a place in most collections, deservedly indeed, for it has every claim to our notice; its appearance is magnificent, the glaucous colour of its foliage highly pleasing, its flowers large and of long duration; it blows freely, grows rapidly, is easily increased by cuttings, and will succeed in a house or window, with the common treatment of an African Geranium.

When suffered to grow, it will become a shrub of considerable size; but this is not necessary for its flowering, as young and small plants are disposed to throw out blossoms, which is not the case with a plant extremely similar to, and often confounded with it, viz. the *Crassula Cotyledon*, whose foliage indeed scarcely differs from our plant but in being finely dotted.

It is a native of the Cape, and flowers from June or July to September.

In the *Hort. Kew.* of Mr. AITON, four varieties are enumerated differing chiefly in the form of their foliage.



M.S. del. J.N. Fitch lith.

Vernon Brooks Day & Son L.A. Imp.

L. Reeve & C^o London

TAB. 7918.

COTYLEDON (*Echeveria*) PULVINATA.

Native of Mexico.

Nat. Ord. CRASSULACB..

Genus COTYLEDON, *Linn.*; (*Benth. et Hook. f. Gen. Plant.* vol. i. p. 659.)

COTYLEDON (*Echeveria*) *pulvinata*; fruticulus pedalis, robustus, carnosus, pluricaulis v. a basi ramosus, caulibus ramisque divaricatis $\frac{1}{3}$ — $\frac{1}{2}$ poll. crassis primum dense argenteo-velutinis demum ferrugineis, internodiis brevibus, foliis patulis 2–3 poll longis sessilibus spathulato-obovatis oblongisque obtusis crasse carnosis utrinque convexis densissime argenteo-velutinis pilis demum retrorsis pallide viridibus, floribus $\frac{3}{4}$ -pollicaribus in ramulos simplices elongatos foliosos ascendentes dispositis spicatum racemosum velutinis, bracteis foliaceis inferioribus pollicaribus, pedicellis brevibus crassis, calycis segmentis ovato-lanceolatis acutis erectis viridibus, corolla calyce duplo longiore urceolato-campanulato rubro-aurantiaco, tubo brevi, segmentis oblongo-lanceolatis acuminatis apicibus recurvis dorso obtuse carinatis marginibus pallidis, staminibus corolla triente brevioribus, antheris lineari-oblongis apiculatis, disci glandulis depressis lunatis, ovarii carpellis oblongo-ovoideis teretibus in stylos breves inclusos attenuatis, stigmatibus capitellatis.

C. pulvinata, *Hook. f.*

Echeveria pulvinata, *Roe, ined.*

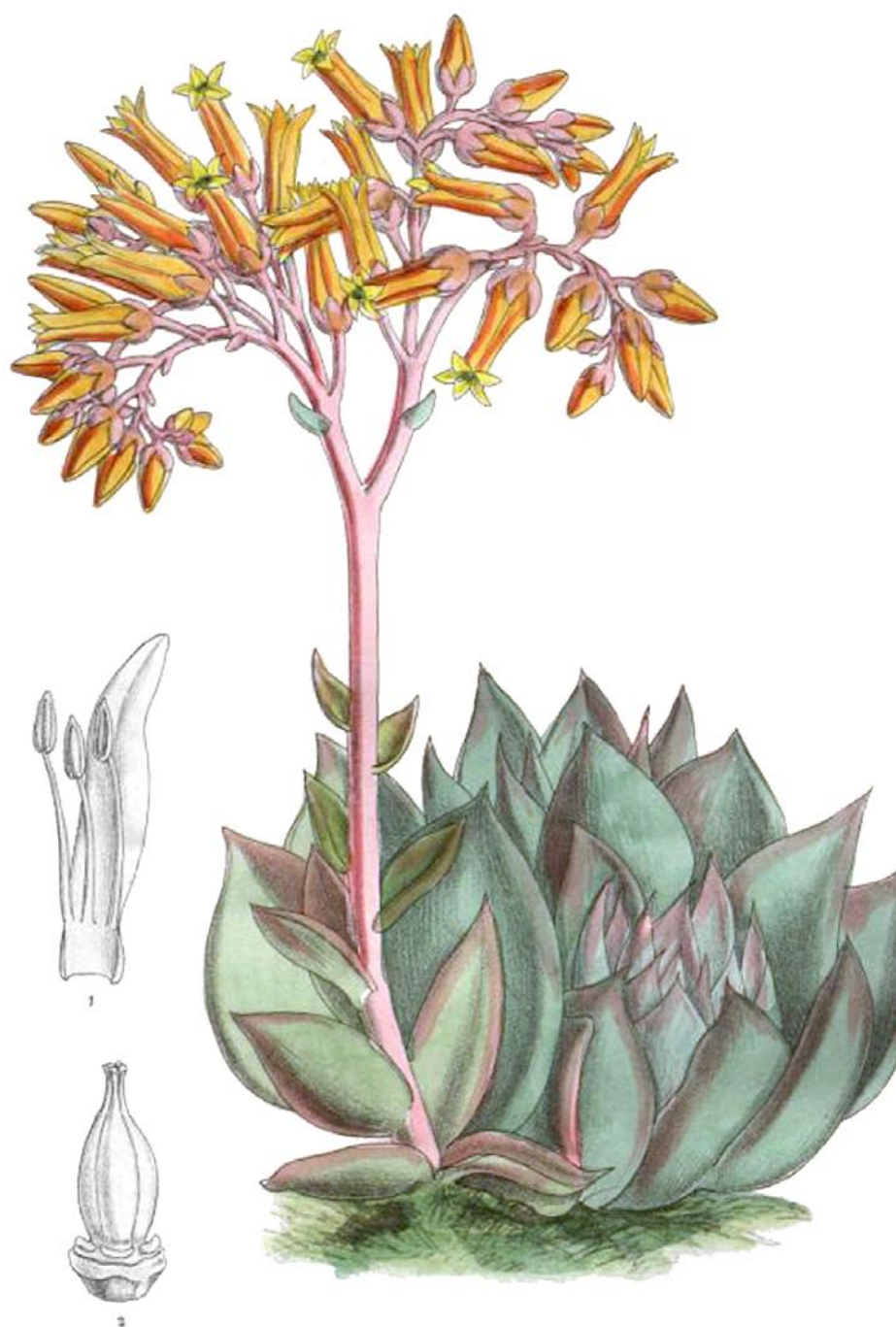
Cotyledon pulvinata differs from the majority of its congeners in its branching habit, scattered leaves, spiciform raceme and clothing of velvety, silvery, white hairs, which turn brown on the branches, and are reflexed in age on the leaves. It has slight claims to be placed in the genus *Echeveria* of De Candolle, which is reduced to *Cotyledon* in the “Genera plantarum,” but this rests only on the costate corolla-lobes, for it has not the foliaceous sepals upon which mainly the genus was established. But I understand that Dr. J. N. Rose and Dr. N. L. Britton are engaged on a revision of the whole of the North American *Crassulaceæ*, and that they propose considerable generic alterations by the creation of several new ones. Therefore I will not further discuss the question of generic limits here.

The plant figured was received at Kew in 1900 from the United States National Museum, Washington, and it flowered in the Succulent House in March of the present year.

OCTOBER 1ST, 1903.

Descr.—A small, very stout, fleshy shrub, seven to eight inches high (in the specimen figured), branching below and upwards, sometimes from the root; covered densely with a silvery, velvety tomentum, which becomes rusty on the stems, and retrorse on the foliage. *Leaves* two to three inches long, sessile, sub-rosulate towards the tips of the spreading branches, spathulately obovate or oblong, obtuse, thickly fleshy, convex on both surfaces, nerveless, pale green. *Flowers* three-fourths of an inch long, erect or inclined, disposed in a spiciform raceme terminating an elongate, ascending, stout, leafy branch, orange-red. *Bracts* leaf-like, the lower an inch long, the upper gradually smaller. *Pedicels* very short and stout. *Calyx* about half as long as the corolla, green; segments ovate-lanceolate, acute, erect. *Corolla* urceolately campanulate, tube short; segments oblong-lanceolate, acuminate, dorsally velvety and obtusely keeled, margins nearly glabrous, pale, tips spreading or recurved. *Stamens* about one-third shorter than the corolla-segments; anthers linear-oblong, apiculate. *Disk-glands* lunate. *Carpels* narrowly ovoid, terete, narrowed into short, subulate styles; stigmas capitellate.—*J. D. H.*

Fig. 1, flower; 2, segment of corolla and stamens; 3, glands of disk and pistil:—*all enlarged*; 4, reduced view of whole plant.



TAB. 7713.

COTYLEDON (ECHEVERIA) PURBUSII.

Native of California.

Nat. Ord. CRASSULACEÆ.

Genus COTYLEDON, *Linn.*; (*Benth. & Hook. f. Gen. Plant.* vol. i. p. 659.)

COTYLEDON (Echeveria) *Purpusii*; acaulis, glaberrima, foliis dense rosulatis crasse carnosis ellipticis ovatisve acuminatis apicibus pungentibus leviter incurvis supra concavis dorso rotundatis glauco-viridibus præcipue apices versus rubro tinctis, exterioribus in fasciculo $1\frac{1}{2}$ –2-pollicaribus, interioribus dense congestis minoribus glaucis, pedunculo valido pallide rubro infra medium foliis paucis alternis radicalibus consimilibus sed multo minoribus ovatis acuminatis instructo, cyma 4–5 poll. lata dichotoma, ramis primariis divarictis recurvis, ramulis pedicellisque roseis, floribus $\frac{3}{4}$ poll. longis suberectis, pedicellis $\frac{1}{6}$ – $\frac{1}{4}$ poll. longis basi bracteola parva carnosa instructis, calycis basi rotundati lobis ovatis obtusis, corolla coccineæ laciniis lineari-lanceolatis apicibus acutis recurvis intus aureis in tubum basi integrum anguste conicum dispositis, staminibus 10, filamentis basi laciniarum insertis glaberrimis, antheris inclusi, ovario ovoideo, carpellis in stylum brevem 5-sulcatum attenuatis.

Echeveria Purpusii, *Shumann in Gartenfl.* 1896, p. 609, fig. 97 (*ic. xylog.*); *Gard. Chron.* 1896, vol. ii. p. 698, fig. 123.

Cotyledon Purpusii is a native of the Sierra Nevada of California, where it was discovered at an altitude of seven thousand to eight thousand feet on Mt. Whitney, by the gentleman to whom it is dedicated by the author in the “Gartenflora.” Nine Californian species of the genus are given by S. Watson in the “Flora of California,” with the descriptions of one of which, *C. nevadensis*, Wats., *C. Purpusii* so closely agrees, that it is possible that the latter is a synonym, especially as Sonora and the Yosemite Valley (the habitats for *nevadensis*) are, though much lower in elevation, in the same botanical region and group of mountains as Mt. Whitney. Referring to the Herbarium, I find it impossible from dried specimens to settle this point, which must be reserved for study when living specimens of *C. nevadensis* are available for comparison. Another very similar species is *Echeveria Desmetiana*, L. de Smet (*ex Morren in Belg. Hortic.*, 1874, p. 159; *Ill. Hort. sér.* 6, ii. p. 93, f. 13), which is recorded as a native of Mexico.

MAY 1ST, 1900.

The specimen here figured of *C. Purpusii* was sent to me by Mr. R. J. Lynch, for figuring in this work from the Botanic Gardens of the University of Cambridge, where it flowered in the open air in June, 1899, having been subjected, without injury, to at least 12 below the freezing point in the previous winter.

Descr.—Quite glabrous. *Leaves* crowded in a sessile rosette, four inches in diameter, thickly fleshy, of a dull, rather pale, more or less glaucous-green colour, tinged with dull red towards the margins and tips, outer one and a half to two inches long, ovate or elliptic-ovate, acuminate, tip pungent, inner densely crowded, narrower, paler, more glaucous. *Peduncle* four inches high, ascending from the base of the rosette, stout, and, as well as the cyme-branches and pedicels, pale, rose-coloured, bearing below the middle scattered, ovate, acuminate leaves like the radical, of which the lower are an inch long, the upper gradually smaller. *Cyme* twice dichotomous, branches divaricate, primary two and a half inches long, spreading and recurved; bracts small, obtuse, fleshy. *Flowers* erect, pedicelled, three-fourths of an inch long. *Sepals* short, broadly ovate, obtuse. *Corolla* conical-tubular; tube very short; segments linear, scarlet, with spreading, acute, golden-yellow tips. *Stamens* included; filaments subequal; anthers linear-oblong. *Ovary* ovoid-oblong, narrowed into a short style with five minute stigmas.—*J. D. H.*

Fig. 1, portion of corolla and stamens; 2, tip of pedicel and ovary:—*Both enlarged.*



TAB. 6417.

COTYLEDON RAMOSISSIMA.

Native of South Africa.

Nat. Ord. CRASSULACEÆ.

Genus COTYLEDON, *Linn.*; (*Benth. & Hook. f. Gen. Pl.* vol. i. p. 659.)

COTYLEDON (*Paniculatæ*) *ramosissima*; fruticosa, glaberrima, glaucescens, foliosa, ramosissima, caule crasso erecto, ramis ramulisque confertis patentibus cylindraceis annulatis ciliatis, foliis confertis breviter petiolatis obovato-orbiculatis subacutis v. breviter cuspidatis concavis integerrimis dure carnosius purpureo-marginatis glauco-viridibus, floribus ad apices ramulorum solitariis pedicellatis cernuis sesquipollicaribus, calycis brevis dentibus acutis sinibus latis rotundatis, corolla campanulata cylindracea viriscente lobis brevibus recurvis pallide sanguineis, filamentis corollæ tubo basi adnatis antheris exsertis, carpellis gracilibus, ovariis antice planis, basi squamis cucullatis adnatis.

C. ramosissima, *Haw. suppl.* p. 25; *DC. Prodr.*, vol. iii. p. 396; *Hare. & Sond. Fl. Cap.*, vol. ii. p. 372.

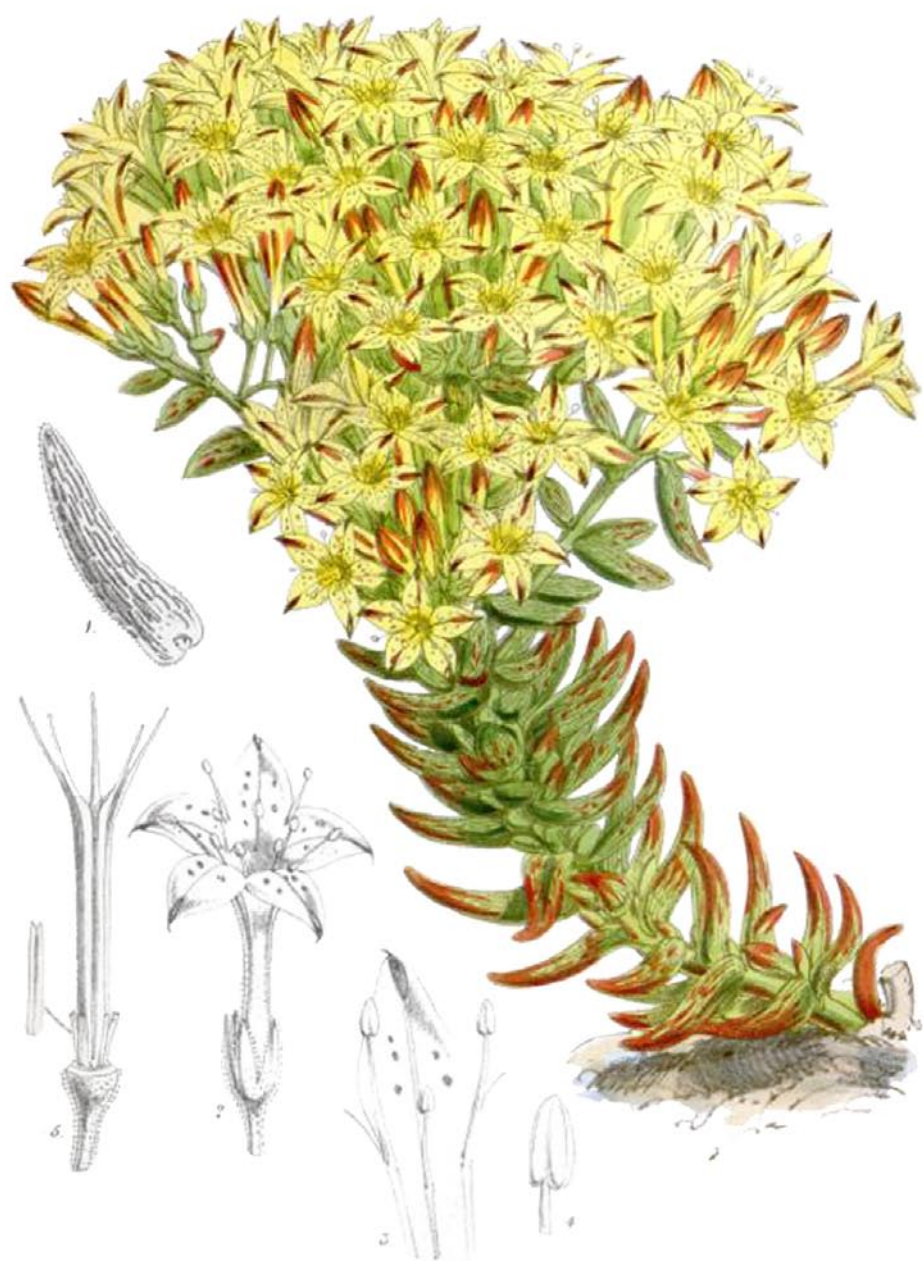
A native of the interior districts of South Africa, as at Uitenhage, George, the Zwartkops river, where it forms a bush from one to three feet high, remarkable for its density, bushy and leafy habit, and the pale glaucous green of the foliage and young parts. It is very closely allied to the beautiful *C. orbiculata* of this Magazine (Tab. 321), differing in habit and wanting that snowy glaucous hue of that plant, but remarkably similar in form and size of the flower. Though referable to the section with paniced flowers in all other respects but this, the flowers are in all our specimens, living and dried, solitary at the tips of the branchlets.

Cotyledon ramosissima has been long cultivated at Kew, and all trace of its introduction is lost, though this must have been since the date of the publication of the second edition of the "Hortus Kewensis," namely 1811, in which work it is not described; it was, however, discovered soon after that date (in 1813) by Burchell, whose specimens are at the Kew Herbaries. The Kew plant for which the accompanying figure was made was sent by Mr. McGibbon, of the Capetown Botanical Gardens, and flowered in the month of September.

DESCR. A bushy, succulent, much branched, erect shrub,
MARCH 1ST, 1879.

one to three feet high; branches cylindric, annulate, covered with an ashy bark. *Leaves* crowded, opposite, three-quarters to one inch long, orbicular, obovate, subacute or cuspidate, concave, densely fleshy, quite entire, nerveless minute glaucous furpuraceous scales, derived from the dead upper cells of the epidermis, margins dull purple. *Flowers* solitary at the tips of the branchlets, drooping, an inch and a half long; peduncle curved, naked, shorter than the flower, swollen in a top-shaped manner beneath the calyx. *Calyx-tube* short, cupular; teeth five, very short, triangular, acuminate, appressed to the corolla, separated by a broad shallow rounded sinus. *Corolla* much larger than the calyx, fleshy, campanulate; tube pale glaucous-green, cylindric or obscurely angular, lobes one-third the length of the tube, spreading, ovate, acute, thick, glabrous. *Stamens* ten, filaments long, much thickened and pubescent at the base, where they are united into a ring which is attached to the corolla near its base; this ring projects in the cavity of the corolla and forms at its base a chamber which probably catches the nectar secreted by the glands at the base of the carpels, which would otherwise escape from the pendulous flower; anthers exserted. *Carpels* slender, tapering into filiform styles; ovary flat on the back, adnate below the horizontal fleshy cucullate hypogynous glandular scales.—*J. D. H.*

Fig. 1, Vertical section of flower; 2, portion of corolla laid open, and stamens showing the chamber formed by the shortened bases of the filaments; 3, bases of carpels and scales; 4, transverse section of carpel:—*all enlarged.*



TAB. 5801.

COTYLEDON SALZMANNI.

Salzmann's Cotyledon.

Nat. Ord. CRASSULACEÆ—DECANDRIA PENTAGYNIA.

Gen. Char.—*Calyx* 5-partitus, corollæ tubo equalis v. brevior. *Corollæ* tubus angustus v. amplus, urceolatus v. cylindricus, teres v. 5-gonus, limbi lobis parvis patentibus. *Stamina* 10 (rarissime 5), tubo corollæ inserta, filamentis filiformibus brevibus v. elongatis; antheræ oblongæ, exsertæ v. inclusæ. *Squamulæ* lineares, oblongæ v. quadratæ, nunc latiores quam longæ. *Ovarii* carpella 5, libera, in stylos filiformes v. subulatos sæpe exsertos attenuata, stigmatibus oblique capitellatis; ovula in carpellis ∞ . Folliculi ∞ -spermi.—*Herbæ* v. suffrutices *ramos* v. *subscapiger*, *habitu valde variæ*. *Folia opposita* v. *alterna*, *sesilia* v. *petiolata*, sæpe *crassissime carnosâ*, in *paucis peltata*, *sparsa* v. *rosulata*. *Flores erecti* v. *penduli*, *parvi majusculi* v. *ampli*, *spicati racemosi* v. *cymosi*, *nunc speciosi*. *Corolla lobi æstivatione torti*. Benth. and H. f. Gen. Plant. i. 659.

COTYLEDON *Salzmanni*; radice annua, ramis cymosis glanduloso-hirtis, foliis subulato-lanceolatis acutiusculis glandulosis teretibus, sepalis 5 parvi acutis hirtellis, corolla calyce plus sextuplo longiore ad tertiam partem usque profunde 5-fida, tubo subconico extus hirtello, limbi subpatuli lobis ovatis apiculatis mucronulatis flavis apice brunneis et brunneo sparse punctatis, stylis et staminibus subæqualibus exsertis.

COTYLEDON (Pistorinia) *Salzmanni*, *Boiss. Voy. in Esp.* p. 224, t. 63, fig. *B. Walp. Rep.* ii. 258.

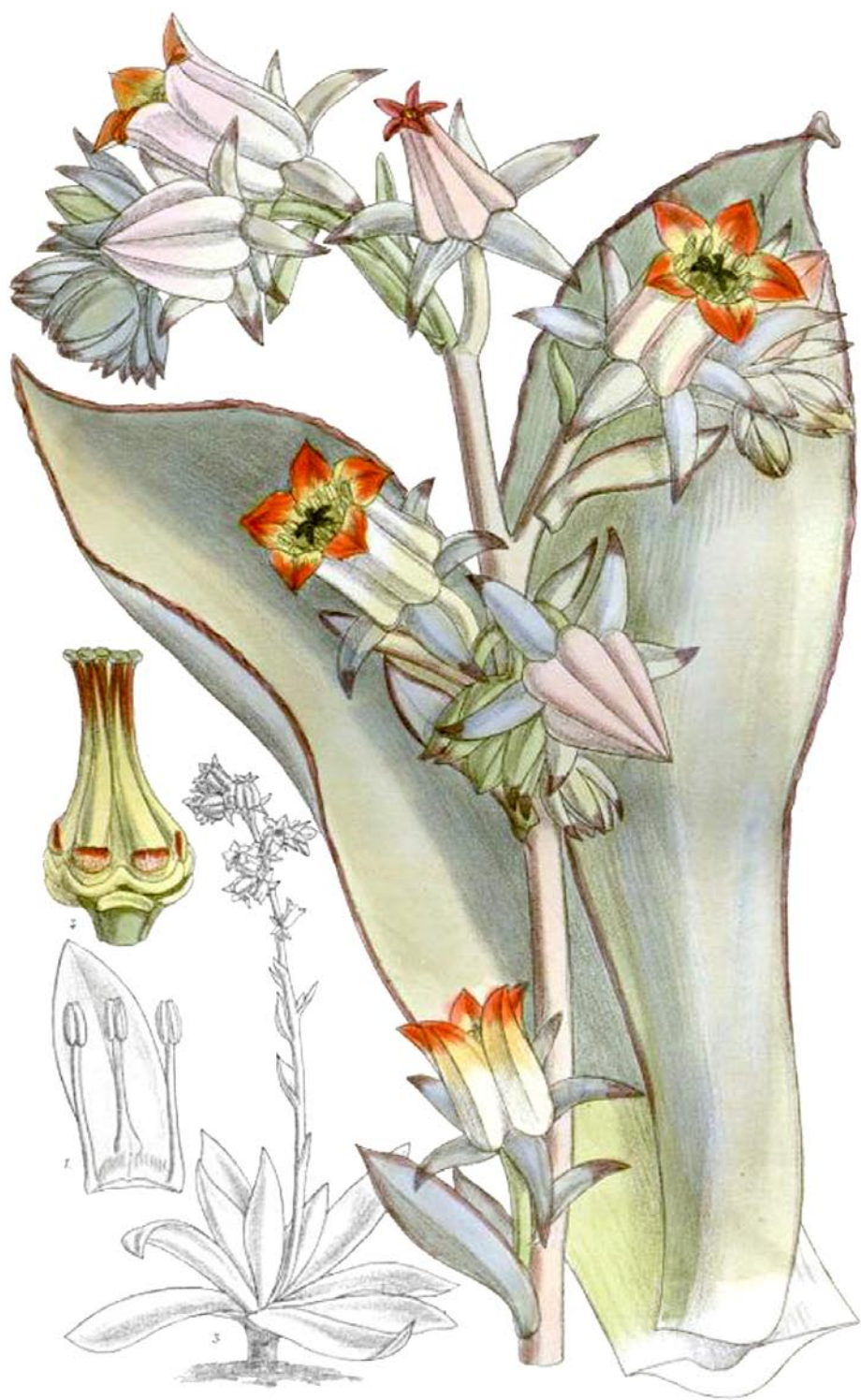
A more beautiful rock plant of the kind than this can scarcely be imagined. It is literally a mass of brilliant golden blossoms, relieved by the red-brown spots at the tips of the corolla lobes, which give them the appearance of being forked at the apex. The foliage, too, is of a brilliant green translucent texture relieved with blood-red streaks. I have referred it with some doubt to Boissier's Mogador plant, the dried specimens of which are but one and a half inches high, and am far from satisfied that it is not a form of *C. hispanicum*, Desff.

OCTOBER 1ST, 1869.

The Royal Gardens are indebted for this beautiful plant to G. Maw, Esq., who collected it at Tangiers in the early spring of the present year, and transmitted it to Kew with many other most interesting herbaceous plants: it flowered in the month of July.

DESCR. Annual, covered with glandular hairs, tufted. *Stem* stout, inclined, ascending, as thick as a crow-quill, leafy, excessively corymbosely branched at the top. *Leaves* half an inch to two-thirds of an inch long, spreading, curved, very thick and fleshy, terete, obtuse, green, covered with short red streaks, tips red-brown. *Flowers* most abundantly produced, shortly pedicelled. *Calyx-lobes* lanceolate, one-third of an inch long. *Corolla* between funnel- and salver-shaped, golden yellow, tube half an inch long, streaked with red, lobes spreading, ovate, apiculate, golden yellow, with red-brown tips and scattered spots. *Stamens* on the throat of the corolla, exserted. *Hypogynous glands* slender, linear, bifid. *Carpels* very lender, with diverging filiform styles.—J. D. H.

Fig. 1, leaf; 2, flower; 8, corolla, tube, and stamens; 4, anther; 5, ovary and scales:—*all magnified*.



M.S. del., J.N. Fitch. hrb.

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TAB. 8445.

COTYLEDON SUBRIGIDA.

Mexico.

CRASSULACEAE.

COTYLEDON, *Linn.; Benth. et Hook. f. Gen. Plant.* vol. i. p. 659.

Cotyledon subrigida, *Robins. and Seaton in Proc. Amer. Acad.* vol. xxviii. p. 105; affinis *C. gibbiflorae*, *Moc. and Sessé*, sed foliis oblanceolatis acutis, ramis paniculae brevioribus et magis erectis floribusque aurantiacis perglaucis differt.

Herba succulenta, breviter caulescens, omnino glabra. *Caulis* 2 cm. crassus. *Folia* circiter 18, rosulata, adscendentia vel patula, sessilia, crasso-carnosa, 10–15 cm. longa, 5–6·5 cm. lata, oblanceolata vel sublanceolata, acuta, viridia, glauca, marginibus rubris leviter crispatis. *Pedunculi* axillares, circiter 50 cm. alti, superne in racemis 3–5 secundis adscendentibus ramosi, pallide virides vel rubescentes, glauci. *Bractae* inferiores 2–3·5 cm. longae, 9–17 mm. latae, superiores gradatim minores, sessiles, ovato-lanceolatae, acutae, basi breviter calcaratae, glauco-virides, rubro-marginatae. *Pedicelli* 4–18 mm. longi, glauco-virides. *Sepala* valde patula, 1·3–1·7 cm. longa, basi 5–6 mm. lata, superne attenuata, acuta, glauca, rubro-marginata. *Corolla* 2 cm. longs, 1–5 cm. diametro, 5-angularis, urceolata, fere ad basin 5-loba, pulchre aurantiaca, inferne lutescens, perglauca; lobi arcte imbricati, apice patuli, oblongi, acuti. *Stamina* 10, inclusa; antherae atrorubrae; pollen luteum. *Glandulae hypogynae* 1 mm. longae, 3 mm. latae, transversim oblongae, integrae, rubrae. *Carpella* 1–6 cm. longa, in stylum gradatim attenuata, inferne pallide viridia, superne fusco-purpurea.—*Echeveria subrigida*, *Rose in Bull. New York Bot. Gard.* vol. iii. p. 10.—N. E. BBROWN.

The handsome *Cotyledon* which forms the subject of our illustration is very distinct from any of the other species of this genus now in cultivation, though among these it is, perhaps, more nearly allied to the familiar *C. gibbiflora*, *Moc. and Sessé*, than to any other. But from *C. gibbiflora* it differs widely in the form and colour of its leaves, and in the rich orange tint of its corolla, which is very glaucous on the outside. The branches of the inflorescence are shorter, more erect and stiffer. *C. subrigida* was first discovered in Mexico, in October, 1892, by Mr. C. G. Pringle, growing on ledges of cliffs in the Tultenango Cañon. The plant from which the material for our figure has been obtained was presented to Kew in 1905 by the authorities of the Natural History Museum, Washington, U.S.A., under the
JULY, 1912.

name proposed by Dr. Rose. It has grown vigorously in the cooler end of the Succulent House at Kew and flowered profusely in October, 1911. Like the other species of the genus in cultivation it is easily grown if placed in a sunny position out of doors during the summer and protected from frost in winter by being transferred to a greenhouse or a heated frame.

DESCRIPTION.—*Herb*, succulent and shortly stemmed, everywhere glabrous. *Leaves* about 18, rosulate, ascending or the lower spreading, sessile, thickly fleshy, 4–6 in. long, 2–2½ in. wide, oblanceolate or almost lanceolate, acute, green and glaucous, with red somewhat crispate margin. *Peduncles* axillary, about 1½ ft. high, branching upwards into 3–5 ascending, secund racemes, pale green or tinged with red, and glaucous. *Bracts* sessile, ovate-lanceolate, acute, shortly spurred at the base, glaucous-green with red margin, gradually diminishing upwards, the lowest $\frac{3}{4}$ –1½ in. long, $\frac{1}{3}$ – $\frac{2}{3}$ in. across. *Pedicels* $\frac{1}{6}$ – $\frac{2}{3}$ in. long, glaucous-green. *Sepals* markedly spreading, $\frac{1}{2}$ – $\frac{2}{3}$ in. long, about $\frac{1}{4}$ in. wide at the base, narrowed upwards, acute, glaucous with red margin. *Corolla* $\frac{4}{5}$ in. long, $\frac{3}{5}$ in. wide, urceolate, 5-angled, 5-lobed almost to the base, brilliant orange above, yellowish lower down, very glaucous; lobes closely imbricate, spreading at the tip, oblong, acute. *Stamens* 10, included; anthers dark-red; pollen yellow. *Hypogynous glands* transversely oblong, entire, red, $\frac{1}{8}$ in. wide, very short. *Carpels* over $\frac{1}{2}$ in. long, gradually narrowed into the style, pale green below, dull purple upwards.

Fig. 1, petal with three stamens; 2, carpels and hypogynous scaks; 3, sketch of an entire plant:—1 and 2 enlarged, 3 much reduced.



W. Pich del. et lith.

Vincent Brodia Guss. & Son Imp.

TAB. 6235.

COTYLEDON TERETIFOLIA.

Native of South Africa.

Nat. Ord. CRASSULACEÆ.

Genus COTYLEDON, *Linn.*; (*Benth. et Hook. f., Gen. Plant.*, vol. i., p. 659).

COTYLEDON (*Paniculatae*) *teretifolia*; glanduloso-pubescent v. tomentosa, caule robusto ascendente, foliis sessilibus hexastiche oppositis 2–5-pollicaribus subcylindræis crasse carnosis apicibus subspathulato-rotundatis et discoloribus, pedunculo crasso erecto nudo v. foliis paucis oppositis alternisve instructo, cyma effusa ramis patentibus, calycis lobis triangulari-ovatis, corollæ aureæ tubo brevi, lobis elongatis lineari-oblongis acutis patenti-recurvis, filamentis conniventibus exsertis, glandulis hypogynis parvis, carpellis in stylis elongatos apice patentes attenuatis, stigmatibus capitellatis.

CRASSULA *teretifolia*, *Thunb. Prod. Fl. Cap.*, p. 83; *DC. Prod.*, vol. iii., p. 397; *Harv. et Sond. Fl. Cap.*, vol. ii., p. 373.

The Cape Crassulaceæ, once the favourites of the greenhouse, have, with the exception of some gaudy *Crassulas*, long gone out of fashion amongst cultivators, or are relegated to the specialist or botanist. Nevertheless, they comprise a series of as beautiful and easily cultivated plants as any group of the vegetable kingdom, and that their day will dawn again is certain. Already, indeed, the rich collection in the Succulent House at Kew has many admirers, and, thanks especially to this and to the example and liberality of Mr. Wilson Saunders, the number of cultivators of this class of plants who regularly correspond with Kew is very considerable.

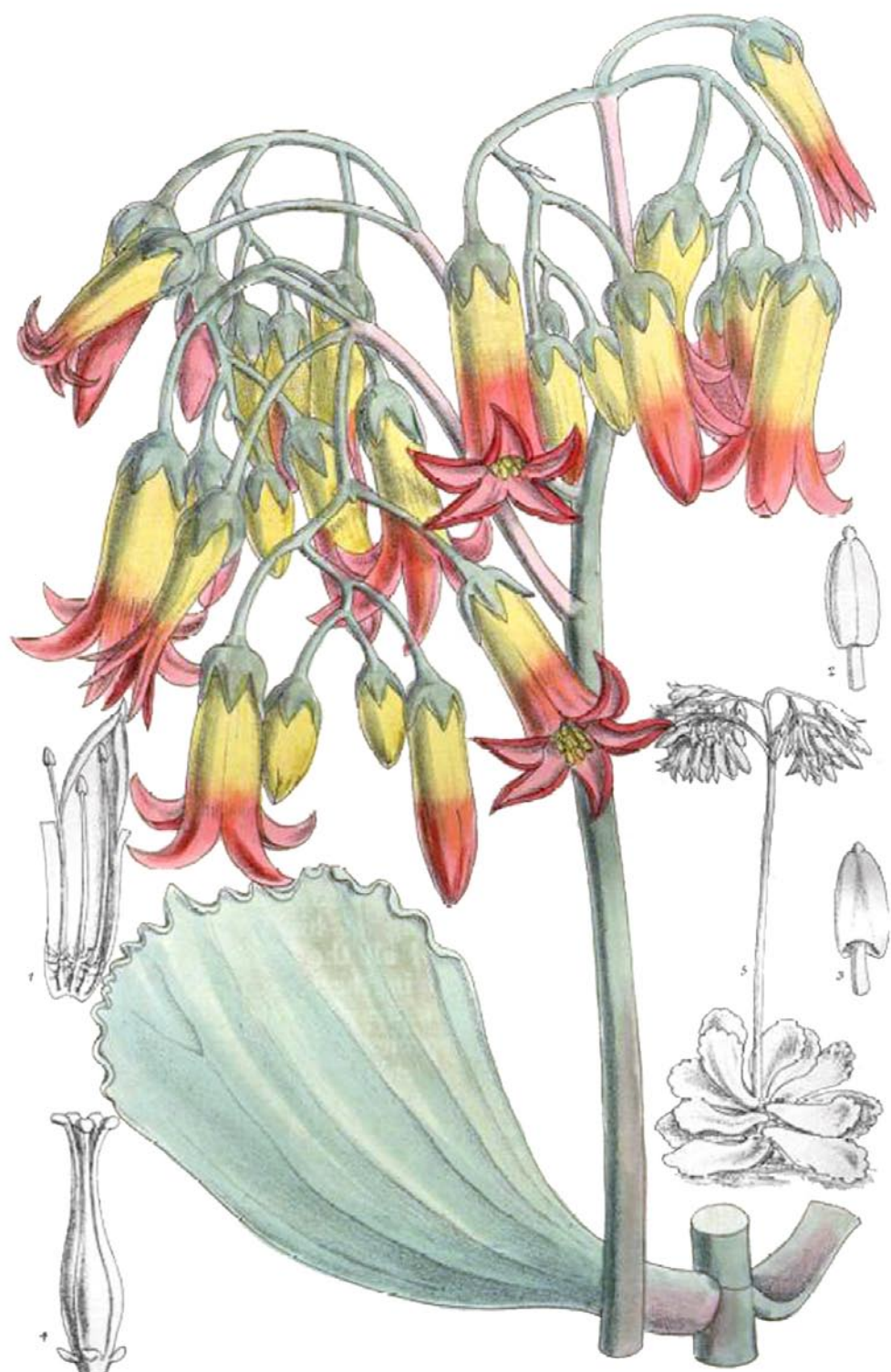
The genus *Cotyledon*, which is represented in England only by the curious Navel-wort, so common on the walls and rocks of the south and west coasts of the British Isles, and in Europe, North Africa, and West Asia by a few other species, attains its maximum of development in South Africa, where upwards of twenty species are known, and from whence not a small number have been so imperfectly described that they cannot be identified; for, indeed, it is a genus that can only be studied upon living specimens. In South Africa it is chiefly confined to the south-western corner of the continent, most of the species occurring in the Cape Town district. To this

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C. teretifolia is rather an exception, it being found as far to the east as the province of Graaf Reinet and Somerset, where it forms an undershrub on the hills. Living specimens have been received at Kew from Mr. Wilson Saunders in 1873, and from the late Mr. D. Hanbury, which flower in the month of July.

DESCR. A branching undershrub, clothed with a more or less dense pubescence of short, soft hairs, which are glandular on the inflorescence especially. *Branches* as thick as the finger, and a foot or more long. *Leaves* opposite, in six series round the branches, three to eight inches long, cylindric or nearly so, contracted towards the sessile base, rather expanded towards the tip into a triangularly rounded discoloured apex, the old ones obscurely flattened and channelled down the middle, pale green except the red-brown apex. *Peduncle* six to eighteen inches high, stout, terete, naked, or with one or two opposite or alternate small leaves. *Cyme* four to ten inches in diameter, nearly flat-topped; bracts scattered, linear, deciduous; pedicels spreading, half to one and a half inch long. *Calyx-tube* obscure, lobes of variable length and breadth, triangular-ovate, acute, glandular. *Corolla* bright yellow, tube rather longer than the calyx-lobes, five-angled; limb of five spreading and reflexed narrow acute segments, which are glandular on the back. *Stamens* erect, exserted, with the filaments slender and conniving by their middle; anthers very small. *Hypogynous glands* minute, emarginate. *Carpels* elongate, narrowed into slender styles with radiating tips; stigma capitate.—*J. D. H.*

Fig. 1, Flower; 2, carpels and hypogynous glands:—*both magnified.*



TAB. 7931.
COTYLEDON UNDULATA.
Native of South Africa.

Nat. Ord. CRASSULACEÆ.

Genus COTYLEDON, Linn.; (*Benth. et Hook. f. Gen. Plant.* vol. i. p. 659.)

COTYLEDON (§ Paniculatæ) *undulata*; species adhuc imperfecte cognita, *C. orbiculatæ*, Linn. (*Bot. Mag.* t. 321) affinis, a qua differt foliis obovato-spathulatis apice rotundatis vel fere truncatis grosse undulato-crenatis cuspidatisque; frutex erectus, carnosus, albo-farinosus, caule subsimplici cum inflorescentia circiter 3-pedali, foliis oppositis, internodiis brevibus vel brevissimis, crassis carnosus $3\frac{1}{2}$ –5 poll. longis maximis supra medium $2\frac{1}{2}$ poll. latis margine in parte superiore interdum rubrescente, pedunculis 12–18 poll. longis nudis vel foliis paucis parvis ovatis subacutis infra medium instructis, floribus subdichotomo-cymosis longe pedicellatis pendulis circiter $1\frac{1}{2}$ poll. longis luteo-rubris, calycis segmentis parvis deltoideis subacutis, corolla tubo cylindrico lobis duplo longioribus, lobis acutis recurvis, staminibus vix exsertis, carpellis 5 glabris, stylis stamina vix æquantibus.

C. undulata, *Haw. Suppl. Pl. Succ.* (1819), p. 20 ("Plantæ Kewenses solum juveniles"); *Revis Pl. Succ.* (1821) p. 20 ("Simulat *C. orbiculareæ*, at longe humilior, foliis incipientibus apice magis undulatis cuspidatisque"). *DC. Prod.* vol. iii. p. 396 (sine florum descriptione). *Harv. & Sond. Fl. Cap.* vol. ii. 377 ("probably a form of *C. orbiculata*"). *Schönland & E. G. Baker in Journ. Bot.* 1902, pp. 13 et 17, t. 431.

Cotyledon foliis latis undulatis, &c., *Burm. Rar. Afr. Pl. Dec.* p. 44, t. 19, fig. 2?

As the above references and quotations show, *Cotyledon undulata* was first partially described by Haworth in 1819, from young plants at Kew; but he adds nothing of importance to that description in 1821, although a flowering specimen in his herbarium, now at Oxford, is labelled: "Kew, June, 1820." A drawing of his specimen, by Miss M. Smith, with a copy of all the writing on the sheet on which it is mounted, is in the Kew Herbarium; and in the collection of old Kew drawings there is a fine, bold, coloured figure of this species dated: "Kew, May 23rd, 1825." The drawing is endorsed: "Raised from seeds in 1817, received from Mr. Bowie from the Cape of Good Hope."

Apparently Haworth never described the flowers of *C. undulata*, but there is no doubt that his specimen and the old Kew drawing represent the same species. And there is little doubt that our plant is the same species, though the flowers are purple in the original drawing, the segments of

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the perianth more revolute, and the stamens distinctly exerted; all of which may, perhaps, be accounted for by the advanced stage of the inflorescence. But the South African species of *Cotyledon* are generally badly defined, as is fully exemplified by Baker and Schonland's paper in the *Journal of Botany*, cited above; the one working with the advantage of Haworth's types before him, and the other in South Africa with living plants under observation, they were still unable to define the limits of the species allied to *C. orbiculata*, Lindl., and could only suggest, in many instances, that certain specimens and figures represented the same species.

Haworth cites, in the first instance, Burman's *Cotyledon foliis latis sinuosis*, &c. (*Rariorum Africanarum Plantarum Decades*, p. 44, t. 19, fig. 2) as synonymous with his *C. undulata*; but he subsequently cited it with the sign of interrogation. Lamarck (*Encycl.* vol. ii. p. 142) founded his *C. mucronata* on the same figure. Schonland and Baker, Jun. (*Journ. Bot.* 1902, p. 15), regard *C. mucronata* as distinct from *C. undulata*, and describe a specimen from Graaf Reinet as belonging to the former. Burman's figure was evidently drawn from a plant bearing an inflorescence in a very advanced stage; but I think myself, judging from the variation in the colour and position of the flowers at different stages of development, that *C. undulata* and *C. mucronata* may be the same.

C. orbiculata was figured in the Magazine (t. 321) as long ago as 1795, and it is recorded by Aiton (*Hort. Kew* ed. 1, vol. ii. p. 106) as having been introduced by a Mr. Bentick in 1690.

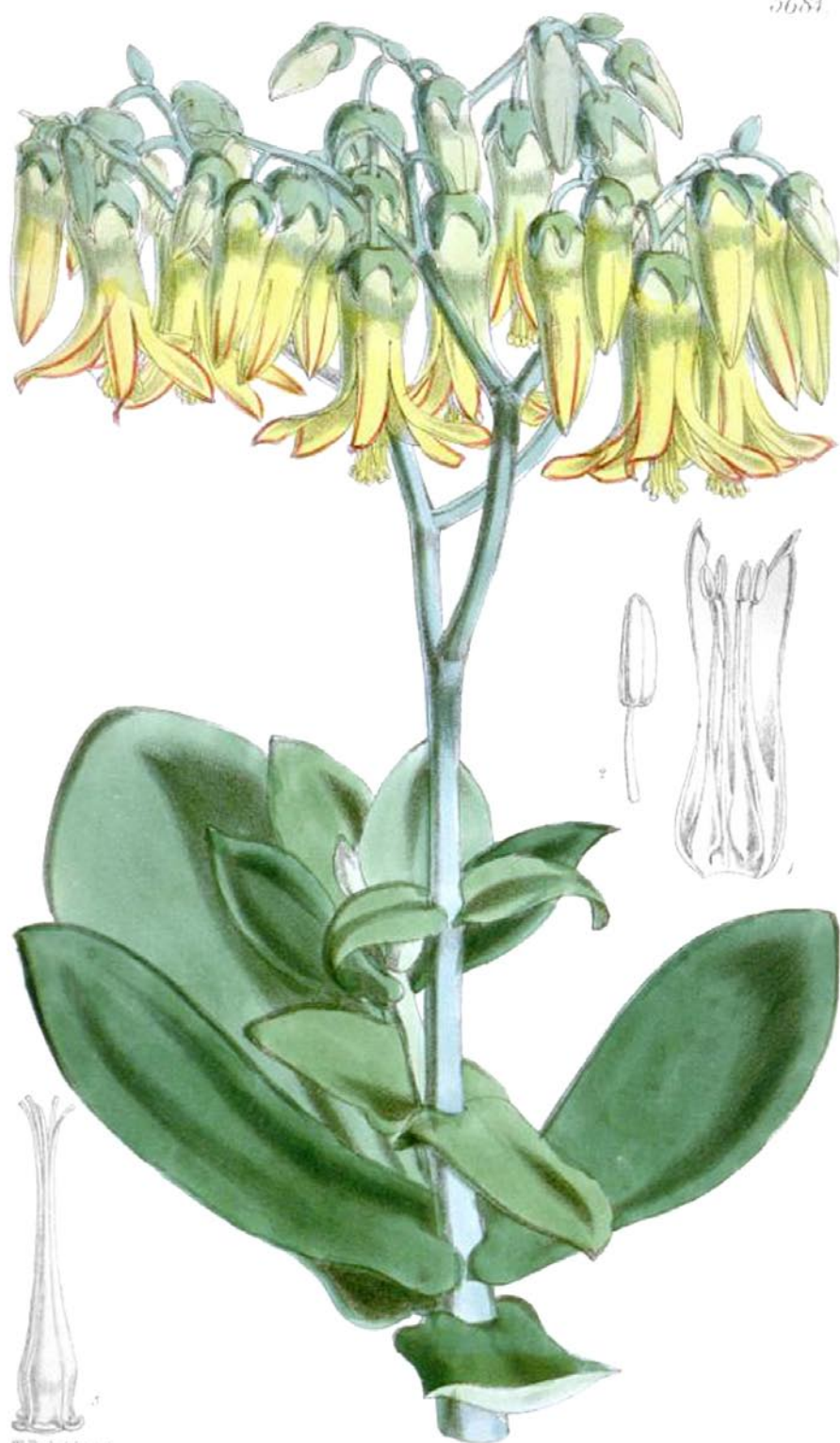
A century ago these showy and easily cultivated succulent shrubs were much in favour, and they certainly deserve more attention than they get at the present time. Curtis wrote of *C. orbiculata* that it flowered freely and grew rapidly.

Our plate was prepared from a specimen received from Mr. R. I. Lynch, Curator of the Cambridge Botanic Garden.

It may be added that *C. gibbiflora*, Moc. & Sessé, a Mexican species of the section *Echeveria*, having foliage similar to that of our plant, is sometimes met with under the name of *C. undulata*.

Descr.—A succulent, erect shrub, two to three feet high, the young parts covered with a white meal. *Leaves* opposite, crowded, very thick and fleshy, obovate-spathulate, three and a half to five inches long, the largest two and a half inches broad above the middle, rounded at the top or almost truncate, usually undulate-crenate above the middle with a terminal cusp; margin often red in the older leaves. *Peduncles* twelve to eighteen inches long, naked or bearing a few small, ovate, somewhat acute leaves below the middle. *Flowers* borne in paniculate cymes about six inches in diameter, one and a half inch long, yellow and orange-red, pendulous. *Pedicels* usually shorter than the flowers. *Calyx-lobes* small, deltoid, sub-acute. *Corolla-tube* cylindrical, twice as long as the recurved, acute lobes. *Stamens* scarcely overtopping the recurved corolla-lobes. *Carpels* five (ripe ones not seen) glabrous; styles scarcely as long as the stamens.—*W. B. H.*

Fig. 1, a petal and three stamens; 2 and 3, anthers; 4, gynæceum; 5, a young plant about one-sixth of the natural size:—*all the other figures enlarged.*



W. Fisch. del. n. 155

E. Fisch. del. n. 155

TAB. 5684.

COTYLEDON VELUTINA.

Velvety-leaved Cotyledon.

Nat. Ord. CRASSULACEÆ.—DECANDRIA PENTAGYNIA.

Gen. Char. (Vide supra, TAB. 5602.)

COTYLEDON *velutina*; ramulis foliisque junioribus velutino-pubescentibus, caule erecto tereti, foliis oppositis obovato- v. subpandurato-oblongis obtusis integerrimis basi cordato-amplexicaulibus crassis enerviis viridibus marginibus apices versus brunneis, panicule corymbosa ramis subhorizontalibus, floribus magnis pendulis pedicellatis, calycis lobia ovato-triangularibus corollæ tubo pallide virescente multo brevioribus, corollæ lobis lineari-oblongis subacutis patentibus flavis purpureo-marginatis, filamentis basi dilatatis.

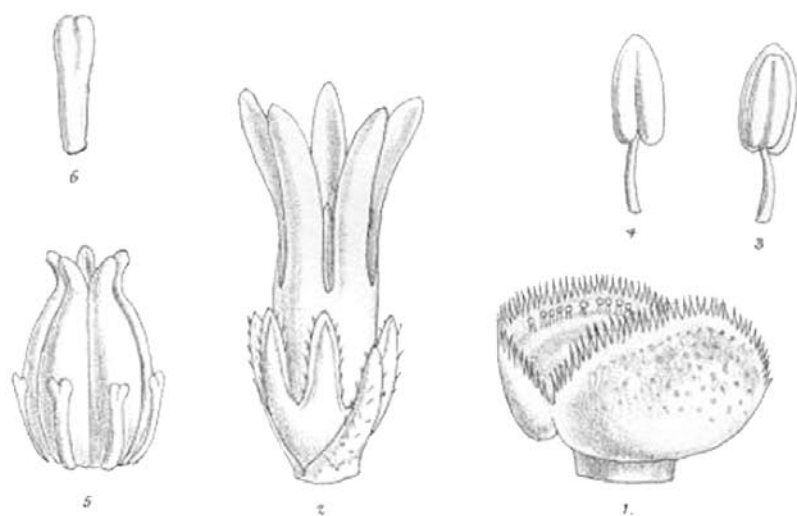
This is another of the noble South African plants introduced by W. W. Saunders, F.R.S., of Reigate, through his energetic collector, Mr. Cooper, and liberally presented, in 1858, to the Royal Gardens, where it is, when in flower, a great ornament to the Succulent House. As a species, it approaches, firstly, *C. cuneata*, Thunb., in the form of the leaves, differing, however, in their being semiamplexicaul at the base, and in not being hispid; and secondly, *C. tomentosa*, Harv., which is a slender, more densely pubescent plant, with subpetioled leaves.

The genus *Cotyledon* contains upwards of twenty Cape species, described in Harvey and Sonder's 'Flora Capensis;' and that this number must fall far short of the total South African species, is evident from this being the second that has flowered since the publication of those descriptions (1862), and been figured in the 'Botanical Magazine' (see Tab. 5602). Amongst the species are some with the most beautifully-coloured foliage, and others with very handsome flowers, and which, together with the facility with which they are cultivated in dwelling-houses or small greenhouses, if even of indifferent construction, renders them well adapted for supplying the horticultural requirements of the less

wealthy and even the poorer classes who inhabit the outskirts of our great towns. A distribution of such succulent plants as these, would give far more enduring pleasure to the poorer classes, than the Geraniums and Verbenas of the parks, given away at the end of the season, when it is almost impossible to keep them alive without heat and glass, and quite impossible to flower them.

DESCR. A stout, succulent perennial, two to three feet high, with rather glaucous, terete stem and scape, and dark-green foliage; *young leaves* and *shoots* covered with a fine velvety pubescence. *Leaves* opposite, rather crowded, decussate, three to five inches long, oblong-obovate or subpanduriform, obtuse, cordate and semiamplexicaul at the base, very thick, quite smooth, even, nerveless; margins quite entire, edged with brown towards the tip. *Scape* erect, strict. *Panicle* subcorymbose, flat-headed, branched, open; branchlets nearly horizontal. *Flowers* pedicelled, pendulous. *Calyx* broad, green, with short, deltoid teeth. *Corolla-tube* one inch long, pale green below, yellow above; *lobes* as long as the tube, linear-oblong, subacute, spreading, bright yellow, with purple margins. *Stamens* exserted; *filaments* very broad at the base; *anthers* striate. *Squamulæ* connate, short, spreading. *Styles* filiform.—J. D. H.

Fig. 1. Lobes of corolla and stamen. 2. Stamen. 3. Ovary:—all magnified.



TAB. 8421.

CRASSULA BARKLYI.

South Africa.

CRASSULACEAE.

CRASSULA, Linn.; Benth. et Hook. f. Gen. Plant. vol. i. p. 657.

Crassula Barklyi, N. E. Brown in Kew Bulletin, 1906, p. 19; affinis *C. columnari*, Linn. f., sed minor et foliis tenuioribus ciliatis suberectis differt.

Herba succulenta. Caulis 2·5–5 cm. altus, simplex vel basi ramosus, cum foliis basi 1·2–1·8 cm. crassus, superne leviter attenuatus, obtuse tetragonus. Folia opposita, decussata, arcte imbricata, suberecta, basi connata, transverse elliptico-oblonga vel late lunata, obtusissima, dorso convexa, carnosae, marginibus acutis ciliolatae, brunneae, punctatae, inferiura 0·5–0·6 cm. longa, 1·2–1·3 cm. lata, superiora gradatim minora. Flores terminales, dense capitati, subsessiles. *Sepala* lineari-spathulata, obtusa, glabra, minute ciliata, 3 mm. longa. *Corolla* gamopetala, profunde 5-loba, glabra, alba (rubro-tincta?); tubus 2–2·5 mm. longus; lobi 6–7 mm. longi, lineares, obtusi, apice recurvo-patuli. *Stamina* 5, inclusa, ore tubi inserta; filamenta 1 mm. longa; antherae 1 mm. longae, oblongae. *Squamae hypogynae* 1 mm. longae, erectae, lineari-cuneatae, truncatae vel emarginatae, canaliculatae. *Carpella* 5, basi connata, erecta, stricta, subteretia, superne vix angustata.—N. E. BROWN.

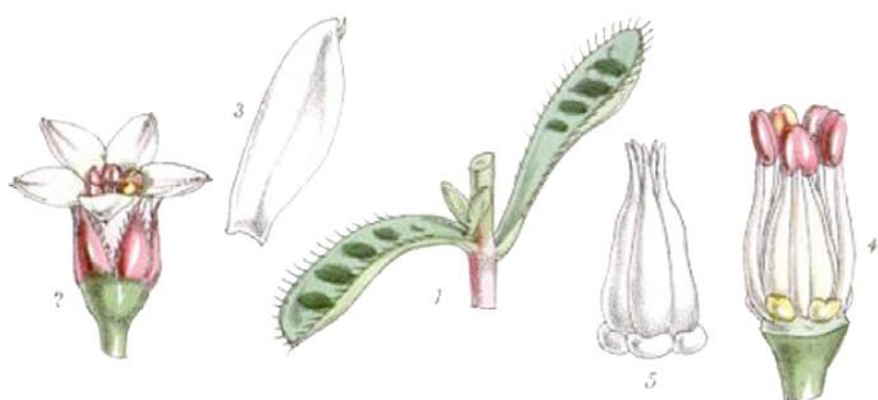
The somewhat peculiar *Crassula* here figured was originally discovered in Little Namaqualand by the late Sir Henry Barkly, who communicated it to Kew in 1875. The plants here figured were received at Kew from Professor H. H. W. Pearson, of Cape Town, in January, 1911; they formed part of a collection made during the Percy Sladen Expedition, and were found by Mr. Pillans, a member of the party, on a ridge four miles to the south-east of Bakhuis. Grown in a house devoted to succulent plants, these specimens flowered in March, 1911. While under these conditions the flowers produced have been white, there is reason to think that when fully exposed to sun and air in their native habitat the petals assume a reddish tinge. The sterns too, as compared with those of the specimens collected by Barkly, are unusually long; the original ones are only $1-1\frac{1}{4}$ inches high. Like other species of *Crassula* with a compact pyramidal habit, *C. Barklyi* is of slow growth and is prone, after flowering, to lose its vigour. The requirements of this and its nearer allies are best met

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by supplying dry tropical conditions and a sandy soil. Of these allies the most nearly related appears to be *C. columnaris*, Linn. f., from which, however, *C. Barklyi* is readily distinguished by the characters mentioned by Mr. Brown.

DESCRIPTION.—*Herb*, succulent; stem 1–2 in. in height, simple or branching at the base, including the leaves $\frac{1}{2}$ – $\frac{2}{3}$ in. thick at the base, slightly narrowing upwards and bluntly 4-angled throughout. *Leaves* opposite, decussate, closely imbricate, almost erect, connate at the base, the lower 2–3 lin. long, 6–7 lin. wide, gradually diminishing upwards. *Flowers* terminal, densely capitate, nearly sessile. *Sepals* linear-spathulate, obtuse, with finely ciliate margins but elsewhere glabrous. *Corolla* gamopetalous, deeply 5-lobed, glabrous, in cultivated specimens white; tube about 1 lin. long; lobes 3 lin. long or longer, linear, obtuse, with recurved spreading tips. *Stamens* 5, included, attached to the mouth of the tube; filaments and long anthers both very short. *Hypogynous scales* very short, erect, linear-cuneate, truncate or emarginate, channelled. *Carpels* 5, connate below, erect, strict, almost terete, hardly narrowed upwards.

Fig. 1, a pair of leaves; 2, a flower; 3 and 4, stamens; 5, carpels and hypogynous scales; 6, a single hypogynous scale:—*all enlarged*.



TAB. 6194.

CRASSULA BOLUSII.

Native of South Africa.

Nat. Ord. CRASSULACEÆ.

Genus CRASSULA, Linn. (*Benth. and Hook., f. Gen. Pl., v. i., p. 657.*)

CRASSULA (Squamulosæ) *Bolusii*; parvula, diffuse ramosa, ramis gracilibus laxè foliosis adscendentibus teretibus sparse patentibus pilosis apice floriferis, foliis $\frac{1}{2}$ poll. longis patulis elliptico-lanceolatis acutis marginibus ciliatis ceterum glaberrimis radicalibus pollicaribus lineari-spathulatis omnibus carnosus dorso semiteretibus facie convexis viridibus nigro maculatis v. fascicatis, floribus corymbosis $\frac{1}{6}$ unc. diameter, breviter pedicellatis, calycis segmentis ovatis acutis ciliatis, petalis oblongis subacutis dorso infra apicem mucronulatis carneis, glandulis hypogynis brevibus emarginatis, carpellis ovoideo-lanceolatis in stylis breves attenuatis, stigmatibus punctiformibus.

A very pretty little Cape succulent, apparently not included in Harvey and Sender's Cape Flora. It was discovered by Mr. H. Bolus, near Graafreinet, who sent both living and dried specimens to Kew. As a species it is closely allied to *C. Cooperi* (Regel Gartenfl., 1874, p. 36, t. 786), a widely distributed Cape species, but differs in the less straggling habit, much longer and narrower radical leaves, and in the dark blotches on the foliage.

The specimen here figured is from plants sent to Kew by Mr. Bolus in 1874, which flowered in the Succulent House in July of the present year.

DESCR. A small, bright green, tufted, perennial herb. *Stems* ascending, three to five inches high, slender, leafy at the base, sparingly so higher up, very sparsely clothed with spreading short white hairs. *Leaves* fleshy, pale green, with dark, almost black blotches, one-third to one-half inch long, elliptic-lanceolate, acute, the lowest often one inch long, and more or less spathulately oblanceolate, upper surface convex, the lower almost semiterete, margin with a row of white rather recurved cilia, otherwise perfectly glabrous. *Flowers* very small, one-sixth inch diameter, in terminal corymbose cymes, very shortly pedicelled. *Calyx-segments* ovate, acute, red, ciliate. *Petals* twice as long, oblong-lanceolate, acute, with a dorsal mucro near the top, pale

flesh-colour. Anthers red. *Hypogynous glands* small, yellow, notched. *Ovaries* ovoid-lanceolate, narrowed into very short straight styles with minute stigmatic tips.—*J. D. H.*

Fig. 1. Portion of branch and part of leaves; 2, flowers; 3, petal; 4, stamens, glands, and carpels; 5, carpels and glands:—*all magnified.*



CRASSULA CENTAUROIDES. CENTAURY-
FLOWERED CRASSULA.

Class and Order.

PENTANDRIA PENTAGYNIA.

Generic Character.

Cal. 5-phyllus. *Petala* 5. *Squamæ* 5, nectariferæ ad basin germinis. *Caps.* 5.

Specific Character and Synonyms.

CRASSULA *centauroides*; caule herbaceo dichotomo, foliis sessilibus oblongo-ovatis cordatis planis, pedunculis axillari-
bus unifloris. *Hort. Kew.* 1. p. 392.—*ed. alt.* 2. p. 194. *Willd.*
Sp. Pl. 1. 1555. *Haworth Succul.* 57.

CRASSULA *centauroides*; caule herbaceo dichotomo, foliis
cordatis sessilibus, pedunculis unifloris. *Sp. Pl.* 404. *Amæn.*
Acad. 6. p. 85. (caule brachiato. *Mantissa* 361.) *Syst. Veg. ed.*
14. p. 305. *Reich. Sp. Pl.* 1. 772.

SEDOIDES *africana* annua *centauroides*. *Herm. Parad.* 169.

DESCR. *Root* annual or biennial. *Stems* prostrate, smooth, of a pale red colour, pellucid on the surface, opaque at the centre, branched: *lower branches* going off at right angles, or brachiate: *upper ones* dichotomous. Leaves opposite, ovate, flat, stem-embracing, margin red, somewhat denticulate, from a row of excavated dots on the under side. *Peduncles* axillary, solitary, one-flowered, erect at first, but reflected after the flowering is over. *Calyx* persistent, five-cleft: *segments* acute. *Corolla* five-petalled, when first expanded not unlike that of the lesser Centaury: *petals* ovate-acuminate, bright crimson at the point shaded off to white at the base. *Filaments* green, inserted into the receptacle below the germen, not into the claws of the petals, with which they alternate. *Anthers* yellow.

Germens

Germens five, cohering: *styles* divaricate. No nectariferous scales were observable.

There is considerable affinity between this species and *pelucida*, and it is not improbable that they have been sometimes confounded. But in the latter plant, as described and figured by DILLENIIUS, the leaves are much thicker, collected into rosettes, and do not stand in distant pairs, as in this.

That our plant is the *CRASSULA centauroides* of the Hortus Kewensis we are sure, having compared it with a specimen preserved in spirits of wine in the Banksian Museum.

We know of no figure existing of this species which, from the brilliancy and long duration of its flowers, so well deserves a place in every collection of succulent plants. It is considered as an inhabitant of the dry stove, but will do very well in the greenhouse, or even in the window of a light apartment.

Native of the Cape of Good-Hope. Propagated by seeds, which, in favourable seasons, are freely produced. Flowers from May to July. Communicated by Messrs. LODDIGES and SONS.



CRASSULA COCCINEA. SCARLET-FLOWERED
CRASSULA.

Class and Order.

PENTANDRIA PENTAGYNIA.

Generic Character.

Cal. 5-phyllus. *Petala* 5. *Squamæ* 5, nectariferæ ad basin germinis. *Capf.* 5.

Specific Character and Synonyms.

CRASSULA *coccinea* foliis ovatis planis cartilagineo-ciliatis, basi connato-vaginantibus. *Linn. Syst. Vegetab. ed.* 14. *Murr. p.* 304. *Mant.* 360. *Ait. Kew. v.* 1. *p.* 390

COTYLEDON *africana frutescens, flore umbellato Cocci neo. Comm. Rar. 24. t. 24. Bradt. Succ. 5. p. 7. t. 50.*

COTYLEDON, *africana frutescens flore cameo amplo. Breyn. Prodr. 3. p. 30. t. 20. f. 1.*

We have no doubt but that when this superb species of Crassula was first introduced from the Cape by Prof. BRADLEY, of Oxford, in 1714, it was regarded as a kind of a Merveil de la Nature; even now that it is common, we scarcely know any succulent that is superior to it, whether we regard its grandeur, the curious growth of its leaves, or the rich colour of its scarlet blossoms, readily produced on plants of a moderate size.

It flowers during the months of July, August, and September; is readily propagated by cuttings, and requires the same treatment as other tender succulents; Mr. AITON regards it as a dry stove plant; in the summer it should be placed in the open air.

N^o. 384



Pub. by McCrossin & Co. Crescent City 1797

CRASSULA COTYLEDON. TREE CRASSULA.



Class and Order.

PENTANDRIA PENTAGYNIA.

Generic Character.

Cal. 5-phyllus. *Pet.* 5. *Squamæ* 5, nectariferæ ad basin germinis. *Capf.* 5 polyspermæ.

Specific Character and Synonyms.

CRASSULA *Cotyledon* foliis subrotundis carnosissimis supra punctatis, caule arboreo. *Linn. Syst. Vegetab. ed.* 14. *Murr. Ait. Kew. v. 1. p.* 393. *Jacq. Miscell. 2. p.* 295. *t.* 19.

COTYLEDON *arborefcens* caule ramofo succulento foliis obverfe ovatis emarginatis marginibus purpureis *Mill. Dict. ed.* 6. 4to.

In the habit of this plant, but more especially in its foliage, there exists a great finilarity to the *Cotyledon orbiculata*, figured t. 321 of this work; there will be found however to be a very great difference in the form of their, flowers, those of the *Crassula* resemble the flowers of a *Sedum*; to which genus, indeed, it has great affinity, but a singular trait in this plant is its indisposition to flower; Mr. FAIRBAIRN informs me, that he never saw it produce blossoms in Chelsea Garden till the present summer; Mr. MILLER never saw it flower, nor does it appear that Mr. AITON ever did. At Chelsea Garden there are several plants of this species, some of which form small trees; one of those, but not the oldest, produced this summer several bunches of flowers, which continued during May and June: in the treatment of these plants there has been no variation, they are constantly kept in a glasscase with other succulents.

It is a native of the Cape, and was cultivated by MILLER in 1739*. Is readily increased by cuttings.

* Ait Kew.

N1940.



From the S. Coast of California, N. S. P. 1917

W. H. & L. S. P.

(1940)

CRASSULA CULTRATA. SHARP-LEAVED
CRASSULA.

Class and Order.

PENTANDRIA PENTAGYNIA.

Generic Character.

Cal. 5-phyllus. *Petala* 5. *Squamæ* 5, nectariferæ ad basin germinis. *Capsulæ* 5.

Specfic Character and Synonyms.

CRASSULA *cultrata*; foliis oppositis obovatis subcultratis obliquis connatis integerrimis. *Hort. Kew. ed.* 1^{ma} 1. n. 393. *ed. alt.* 2. p. 192. *Willd. Sp. Pl.* 1. p. 1552. *Mart. Mill. Dict. n.* 11. *Trew. Pl. Rar.* 2. p. 3. t. 12.

CRASSULA *cultrata*. *Syst. Vegetab. ed.* 14. p. 305. *Thunb. Prod.* 56. *Sp. Pl.* 405.

CRASSULA *anacampserotis* folio. *Dill. Elth.* 115. t. 97. f. 114.

GLOBULEA *cultrta*. *Haworth Succul.* 60.

The flowers of CRASSULA *cultrata* never expand, and the petals bear a globular gland at their apex: on account of which character, Mr. HAWORTH in his Synopsis Plantarum Succulentarum, has thought fit to separate this species with three others from CRASSULA, under the name of GLOBULEA.

CRASSULA *cultrata* comes under the division of *frutescentes*. Native of the Cape of Good-Hope. Cultivated in Dr. SHERARD's garden, at Eltham, in 1732. Is usually kept in the dry stove. Propagated by cuttings. Flowers in August, September, and October. Our drawing was taken some years ago from a plant in the possession of Mr. SYDENHAM EDWARDS.



(2035)

CRASSULA FALCATA. SICKLE-LEAVED

CRASSULA.

Class and Order.

PENTANDRIA PENTAGYNIA.

Generic Character.

Cal. 5-phyllus. *Petala* 5. *Squamæ* 5, nectariferæ ad basin germinis. *Caps.* 5.

Specific Character and Synonyms.

CRASSULA *falcata*; foliis oblongis falcatis glaucis obtusis basi connatis. *Hort. Kew. ed. alt.* 2. p. 191.

CRASSULA *obliqua*. *Bot. Repos.* 414.

CRASSULA *retroflexa*. *Meerb. ic.fasc.* 2. p. 16.

ROCHEA *falcata*. *Plant. Grass.* 103.

LAROCHEA *falcata*. *Persoon Syn.* 1. p. 337.

A figure of this plant having been given by Mr. ANDREWS, in the Botanist's Repository, erroneously for *Crassula obliqua*, it is generally known by that name in our nurseries.

The eminent botanist M. DECANDOLLE, in his *Plantes grasses*, has separated this species and CRASSULA *coccinea* from the rest of the genus, and erected them into a new genus under the name of ROCHEA, altered in PERSOON'S synopsis to LAROCHEA, being dedicated to the memory of M. DE LA ROCHE, author of a monograph on *Ixia* and *Gladiolus*. This, genus has been adopted by Mr. HAWORTH, who has doubtingly added to it three other species, but as all of them, as far as appears by the character, differ in nothing from CRASSULA but in the cohesion of the petals at their base, and the genus is not taken up in the last edition of the Hortus Kewensis, we have judged it better to retain the name given it in the last-mentioned work.

In our specimen the nectariferous scales were quite obsolete, but as these make part of the character of the genus LAROCHEA, the want of them is probably not general.

A Greenhouse

A Greenhouse shrub, or more properly kept with other succulents in the dry stove. Native of the Cape of Good Hope. Blooms at most seasons of the year. Our drawing was made in December. Flowers very fragrant, much resembling honey-suckles. Propagated by cuttings. Introduced about the year 1785. Communicated by Messrs. LODDIGES and SONS.

ERRATA.

No. 381, p. 2019, l. 21, *for* "Prof. JAMES E. SMITH," *read* "Sir JAMES E. SMITH."

No. 382, p. 2025, l. 5, *for* "South," *read* "North."

l. 7, *for* "South," *read* "North."

p. 2028, l. 25, *for* "generally," *read* "generically."



(2178)

CRASSULA JASMINEA. JASMINE-FLOWERED

CRASSULA.

Class and Order.

PENTANDRIA PENTAGYNIA.

Generic Character.

Cal. 5-phyllus. *Petala* 5. *Squamæ* 5, nectariferæ ad basin germinis. *Caps.* 5.

Specific Character and Synonyms.

CRASSULA *jasminea*; caule suffruticoso decumbente, foliis ovatis cruciatis, capitulo terminali bifloro, unguibus petalorum superne connatis.

CRASSULA *jasminiflora*. *Haworth Mss.*

DESCR. *Stem* herbaceous, decumbent, branched, flowering part assurgent. *Leaves* opposite-crosswise, fleshy, oblong-oval, margins cartilaginous-denticulate. *Flowers* terminal, generally two, sessile, not scented. *Calyx* 5-cleft: *Segments* erect, acute, and, as well as the leaves, of a dull red colour at the tips. *Tube* of the *corolla* more than an inch long, formed by the claws which are united at the upper part, but distinct below: *Limb* spreading, scarcely a third part so long as the tube, white, tipped with crimson. *Stamens* 5, inclosed within the tube. *Germens* 5, oblong: *Styles* approximated: *Stigmas* pubescent.

Mr. HAWORTH had given it the name of *jasminiflora*; which, not having been published, we have by the advice of Sir JAMES SMITH altered it to *jasminea*, as more elegant.

Native of the Cape of Good-Hope, raised from seeds imported from that country, in the Chelsea garden by Mr. ANDERSON. Flowers in June. Requires the protection of the greenhouse in the winter months.



(1771)

CRASSULA LACTEA. WHITE CRASSULA.

Class and Order.

PENTANDRIA PENTAGYNIA.

Generic Character.

Cal. 5-phyllus. *Petala* 5. *Squamæ* 5, nectariferæ ad basin germinis. *Caps.* 5.

Specific Character and Synonyms.

CRASSULA *lactea*; caule fruticoso, foliis ovatis basi attenuatis connatis integerrimis intra marginem punctatis, cymis paniculæformibus. *Hort. Kew. ed.* 1^{ma} 1. p. 396. *ed. alt.* 2. p. 193. *Smith Exot. Bot.* 1. p. 63. t. 33. *Willd. Sp. Pl.* 1. p. 1554. *Mart. Mill. Dict. n.* 62. *Plant. Grass.* 37.

CRASSULA *lactea*; foliis obovatis subciliatis albo-punctatis, panicula trifida. *Thunb. Prodr.* 56.

A native of the Cape of Good-Hope, and directed to be kept in the dry stove, as it requires to be protected from a damp atmosphere, as well as from frost. As with all other succulent plants, great care should be taken to water it very sparingly during the winter. A light rich loam with old lime rubbish is recommended as the best soil.

Propagated by cuttings, which should be laid in a dry place for a fortnight before they are planted, that part of their juice may be evaporated, then put into pots of light sand, and plunged into a hot-bed, watering them very sparingly, otherwise they will rot. When they have taken root, which will be in about six weeks, they should be gradually inured to the open air.

Introduced by Mr. FRANCIS MASSON, in 1774, from the Cape Flowers in September and October. Communicated by Mr. GORGE GRAVES, of Walworth, who possesses a very extensive collection of succulent plants.



TAB. 6044.

CRASSULA PROFUSA.

Native of Southd Africa.

Nat. Ord. CIRASSULACEÆ.

Genus CRASSULA, *Linn.*; (*Benth. and Hook. f. Gen. Pl.*, vol. i. p. 657).

CIRASSULA (Perfilata) *profusa*; glaberrima, vix glauca, profuse ramosa, ramis dependentibus et repentibus teretibus, foliis imabasi connatis orbiculari-ovatis acutis carnosius dorso convexus, margine integerrimo badio-limbato superne serie intramarginali punctorum ornato, cymis breviter pedunculatis capitatis, calycis segmentis linearibus, petalis ovatis acutis albis, stylis divergentibus, glandulis hypogynis brevissimis.

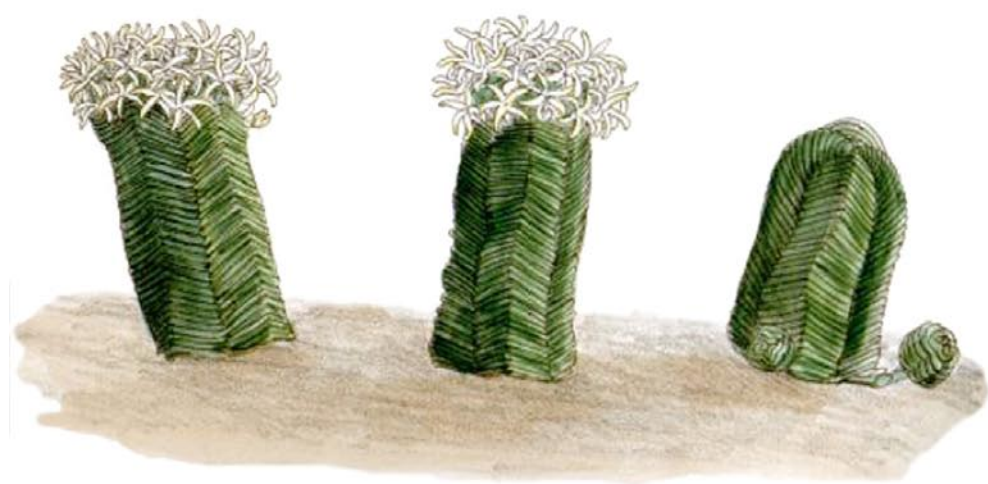
A free-flowering and remarkably ramous species of *Crassula*, sent from the Graaf Reinett district of the Cape Colony by Harry Bolus, Esq., who has contributed many new and curious plants to both the Gardens and Herbarium at Kew. It approaches the *C. perfossa*, Lam., and *C. perforata*, Linn., but differs from both in habit, in the only slightly connate leaves, and longer narrow calyx lobes; it is still nearer *C. marginata*, Ait., with which it further agrees in habit, but the leaves are not broadly connate, and are green (not purple) beneath. The structure of the leaf is very curious. The margin, which is quite entire, is edged with a narrow band of chestnut-brown, within which is a series of orbicular slightly convex punctiform disks. These disks, when highly magnified, are found to consist of a very dense cellular tissue, that terminates downwards in a conical form, and communicates with the peripheral ends of the nerves, in the loose parenchymatous substance of the leaf. The surface of the disk is studded with excessively minute stomata, of a different form from the other stomata on either surface of the leaf, the guard-cells of these stomata further contain on their outer edge a row of minute chlorophylle granules, giving them a most beautiful appearance. The same disposition of these disks occur in *C. lactea* and *C. marginata*, but not in *C. peforata*; their terminating the
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ultimate branches of the nerves indicates their performing an important function in the nutrition of the plant.

C. prolifera was raised from seed received in 1871 from Mr. Bolus, and now forms a profusely flowering mass of branches and leaves, two feet in diameter; it flowered from March to June of the present year.

DESCR. Quite glabrous, excessively branched; branches pendulous and creeping, one to two feet long, cylindric. *Leaves* sessile, half to three quarters of an inch long, orbicular-cordate, slightly connate at the base, acute or cuspidate, very thick and fleshy, slightly convex above, more so beneath, pale green on both surfaces, hardly glaucous, margins quite entire and glabrous, with a narrow chestnut-coloured border on the upper surface, within which is a series of minute points. *Flowers* white, in capitate peduncled cymes, which are about one inch in diameter, and subtended by two small orbicular fleshy bracts; pedicels a quarter to half inch long, turbinate at the apex. *Calyx* of five linear acute segments half as long as the petals. *Corolla* one-third of an inch in diameter, of five ovate acuminate free petals, tinged with pink at the back. *Stamens* hardly exceeding the styles; anthers yellow. *Hypogynous glands* very short and broad. *Carpels* five, ovoid, abruptly terminated by diverging styles with capitate stigmas.—*J. D. H.*

Fig. 1, Bud; 2, leaves; 3, flower expanded; 4, stamen; 5, ovaries and hypogynous glands:—*all magnified.*



5



5



2



1



4

TAB. 7665.

CRASSULA PYRAMIDALIS.

Native of the Cape of Good Hope.

Nat. Ord. CRASSULACEÆ.

Genus CRASSULA, Linn.; (*Benth. & Hook. f. Gen. Plant.* vol. i. p. 657.)

CRASSULA (Pyramidella) *pyramidalis*; nana, caulibus 2–8 pollicaribus foliis omnino velatis cum foliis tetragonia simplicibus vel ramulis brevissimis instructis, foliis quadrifariam imbricatis horizontalibus arctissime imbricatis carnosulis triangulari-ovatis basi subcordatis liberis semamplexicaulibus marginibus puberulis, floribus pentameria, in capitula globosa terminalia $\frac{1}{2}$ –1 poll. diam. confertis albis pentameris, sepalis parvis anguste spathulatis marginibus ciliatis, corollæ glaberrimæ tubo ovoideo sepalis duplo longiore, lobis tubo longioribus linearibus obtusis recurvis, filamentis brevibus, antheris longiusculis ovato-oblongis, squamulis e stipite gracili sursum dilatatis truncatis rubro-aurantiacis, carpellis ovoideis, stylis brevibus.

C. *pyramidalis*, Linn. f. *Suppl.* p. 189. Thunb. *Fl. Cap.* p. 287, et in *Nov. Act. Nat. Cur.* vol. vi. p. 336, t. 5 b. DC. *Prodr.* vol. iii. p. 388. Harv. et Sond. *Fl. Cap.* vol. iii. p. 338. Burbidge in *Gard. Chron.* 1872, p. 289, fig. 108, et 1885, vol. i. p. 545, fig. 101 (*icon. iterat.*).

C. *quadrangula*, Endl. ex Walp. *Rep.* vol. ii. p. 253.

Tetraphyle *pyramidalis* & *quadrangula*, Eckl. & Zeyh. *Enum.* p. 292, 293.

The plant here figured is that known in gardens as *Crassula pyramidalis*, Linn. f. and of Thunberg's "Flora Capensis," but it differs from the description of these authors in the leaves being much larger than one line long, and not being connate, as also in the heads of flowers being sometimes upwards of an inch across, and not merely "larger than a pea." It is possible that in its native state the plant never assumes the size which it does under cultivation, but this small size would not account for the leaves being connate. It must be left to Cape botanists to settle the question by a visit to the spot where Thunberg discovered *C. pyramidalis*, namely, near Olifant's River, by the thermal springs, "(Juxta flum. Olyfant's orientalem, prope thermas," fl. Octob.). Other habitats given by Harvey in the "Flora Capensis" are Kar-roo, between Uitenhage and Graaf Reynet; Kleplaat river; JULY 1ST, 1899.

Driekoppen, Zwaanepoetsport berge, and Gamka river, all in the South-western region of the Cape Colony.

C. pyramidalis has been long in cultivation at Kew, where it flowers in the Succulent House in May and June.

Descr.—*Stems* two to three inches high, entirely hidden from base to tip by the leaves, which are most densely quadrifariously imbricate, together forming a rather acutely four-angled, green column. *Leaves* spreading almost horizontally, nearly half an inch broad, those of each series being closely appressed to one another, broadly triangular, with rounded sides, thinly fleshy, green, margins puberulous in a young state, base contracted and semi-amplexicaul, with a semi-lunar insertion. *Flowers* capitately corymbose, forming a sessile head an inch in diameter or less, pentamerous, very shortly pedicelled, white. *Sepals* very small, narrowly spatulate, with ciliate margins. *Petals* united below into a tube twice as long as the sepals; free portions as long as the tube, linear, obtuse, sub-flexuously spreading. *Stamens* inserted in the corolla-tube, filaments very short, anthers large, ovate-oblong. *Hypogynous scales* dilated upwards from a very narrow base, truncate. *Carpels* narrowed into short styles.—*J. D. H.*

Fig. 1, Top of stem and leaves; 2, flower; 3, sepal; 4, corolla laid open; 5, hypogynous glands and carpels:—*All enlarged.*



CRASSULA ROSULARIS.

Spreading-leaved Crassula.

Nat. Ord. CRASSULACEÆ.—PENTANDRIA PENTAGYNIA.

Gen. Char. Calyx profunde 5-fidus v. 5-partitus, rarius 6–9-partitus, laciniis erectis v. patentibus. Petala 5, rarius 6–9, libera v. basi connata, erecta, patentia v. recurva, apicibus glandulosis. Stamina 5, rarius 6–9, petalis breviora. Squamæ hypogynæ, variæ. Ovaria 5, rarius 6–9, in stylos breves attenuata, stigmatibus capitellatis. Folliculi 5, polyspermi.—Suffrutices fruticesve, rarius herbæ, plus minus crassæ v. carnosæ. Folia opposita, connata v. dense rosulata, rarius petiolata, sæpius cartilagineo-serrulata. Flores sæpius parvi, albi flavi v. rubri, in cymas varie dispositi.

CRASSULA *rosularis*; herbacea, estolonifera; foliis omnibus radicalibus dense rosulatis patentibus imbricatis oblongo-lanceolatis ligulatis v. spathulatis planis glabris cartilagineo-ciliatis, pedunculis scapiformibus erectis striatis, cymis oppositis multifloris subcapitatis, bracteis lineari-oblongis, floribus parvis albis, petalis patentibus acutis.

CRASSULA *rosularis*. *Harv. Rev.* p. 13. *Harv. and Sond. Fl. Cap.* v. 2. p. 350.

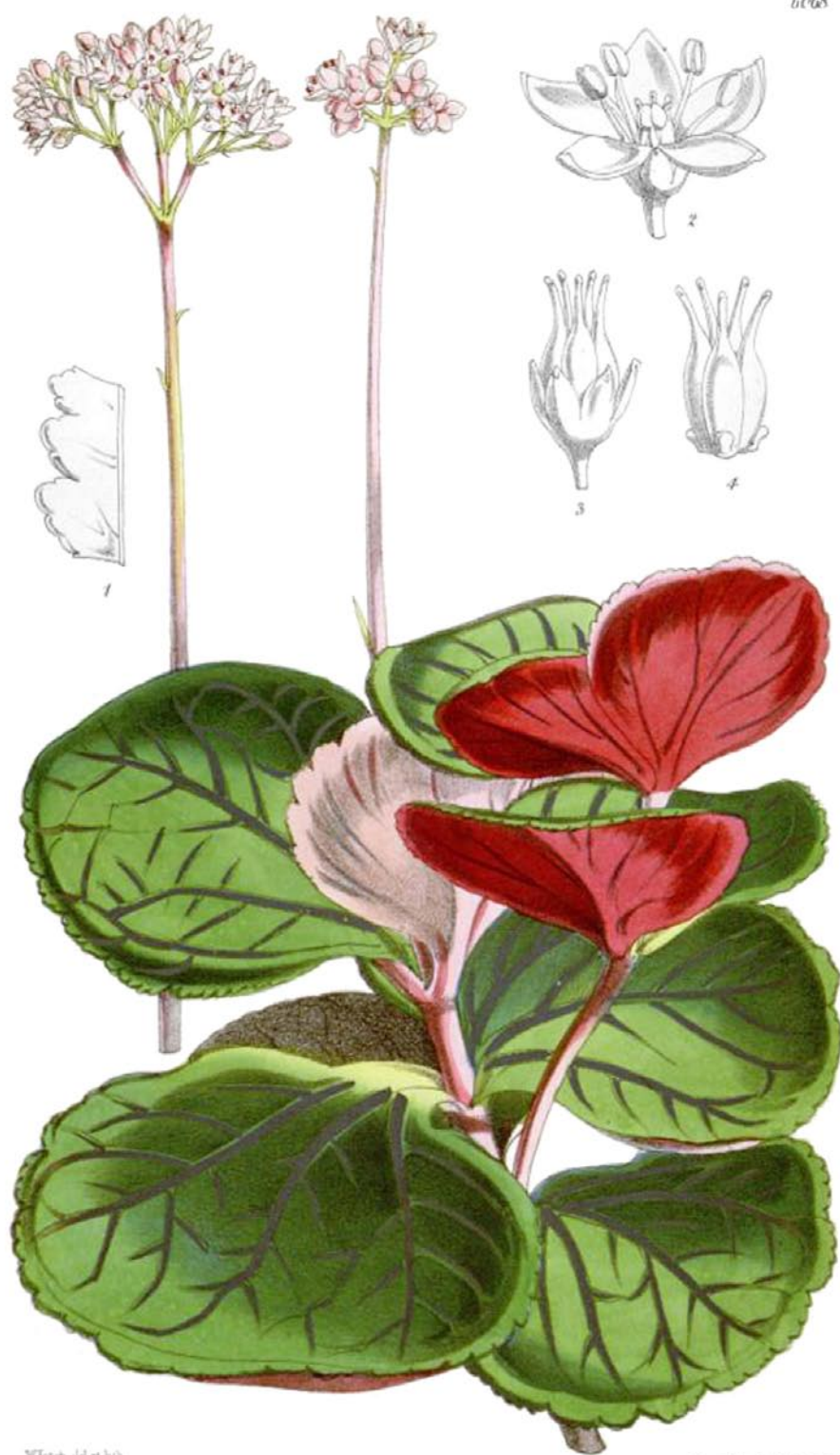
One of the many curious succulents once so generally cultivated in our greenhouses, but which have of late years either been banished from our houses or are confined to botanical establishments. Whether these will ever attain their former popularity is doubtful, though when we consider the remarkable forms they assume, and that their fine evergreen foliage is as ornamental in our houses in winter as in summer, we cannot doubt that they will again claim an honourable place in the conservatory. As it is, few places are more attractive to the winter visitors to the Royal Gardens than its richly-stored succulent-house. The present species is a native of South Africa, extending from Natal to Graham's Town, from whence the plants from which our figure was taken were sent by our valued friend Henry Hutton, Esq., of Graham's Town.

DESCR. Aglabrous perennial, with creeping rhizomes sending out no stolons. Leaves densely crowded into radical rosulate

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crowns, linear-spathulate, subacute, plane, thick and fleshy, with minute cartilaginous cilia at the edges. *Scapes* numerous, stout, erect, bearing numerous opposite, peduncled, subcapitate, very many flowered *cymes*. *Flowers* very small, white. *Petals* oblong, spreading.

Fig. 1. Margin of leaf. 2. Flower. 3. Ditto, calyx removed. 4. Ovary and squamule:—*all magnified*.



TAB. 6068.

CRASSULA SAXIFRAGA.

Native of South Africa.

Nat. Ord. CRASSULACEÆ.

Genus CRASSULA, *Linn.*; (*Benth. & Hook. f. Gen. Pl.*, vol. i. p. 657).

CRASSULA (Tuberosa) *Saxifraga*; glaberrima, radice tuberoso, caule breviusculo simplici v. ramoso, foliis paucis amplis oppositis breviter petiolatis orbiculatis subreniformibusve coriaceo-carnosis lobulatis, lobulis crenulatis subtus sanguineis v. viridibus, pedunculis terminalibus elongatis gracilibus, cymis parvis multiforis corymbosis, sepalia 5 ovatis dorso infra apicem glandulosis petalis ovato-oblongis acutis ter brevioribus, squamis hypogynis minutis, carpellis oblongis in stylos recto breviusculos attenuatis.

CRASSULA *Saxifraga*, *Harv. in Harv. & Sond. Flor. Cap.*, vol ii. p. 357.

For this very singular and brilliantly coloured S. African plant the Royal Gardens are indebted to Principal MacOwan, of Gill College, Somerset East, who transmitted tubers of it from that district, which flowered in June of the present year. It would seem to have a wide South African distribution, being found on mountain sides from the extreme south-west, as on the Muysenberg mountain, near Simon's bay, to Port Elizabeth and Albany. It is nearly allied to *C. Septas*, Thunb., which is a small plant, with fewer very much larger umbellate long-pedicelled flowers that have six to nine narrow petals. The *Septas globifera* of this Magazine (Tab. nost. 1472), which Harvey has considered to be a luxuriant garden state of *C. Septas*, is much nearer and may be a variety of this, but has, according to the plate, usually 6-merous flowers, and smaller leaves, more cuneate at the base. Judging from dried specimens, Drege's *Septas capensis* L. a. is *C. Saxifraga*. The brilliant red colouring of the under-surface of the leaf is not a constant character.

DESCR. Whole plant quite glabrous. Root tuberous, as large as a hazel nut, or even walnut. Stem two to four inches high,

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inclined or erect, as thick as a goose-quill, cylindric, red. *Leaves* two to four pairs, two to three inches diameter, opposite, connate by their short broad petioles, very fleshy, flat, horizontal, slightly concave above, orbicular or subreniform, margin lobulate, the lobules crenulate, upper surface bright green with broad flabellate whitish nerves that are not impressed, under-surface blood-red, with very faint nerves. *Scape* terminal, four to six inches high, slender, strict, erect, with a few subulate scales, pale-pink. *Cyme* one to two inches in diameter, many-flowered, sub-3-chotomously divided; bracts and bracteoles minute, subulate, pedicels one-eighth to one-third of an inch long. *Flowers* one-fourth of an inch in diameter, very pale flesh-coloured. *Sepals* ovate-oblong, green, with a gland at the back below the tip of each. *Petals* of the same shape, but three times larger, subacute, spreading. *Anthers* globose, red-brown. *Hypogynous-scales* minute. *Carpels* ellipsoid, narrowed into straight short styles.—*J. D. H.*

Fig. 1, Margin of leaf; 2, flower; 3, the same, with the corolla removed; 4, carpels and hypogynous scales:—*all magnified.*



(2356)

CRASSULA VERSICOLOR. CHANGEABLE

CRASSULA.

Class and Order.

PENTANDRIA PENTAGYNIA.

Generic Character.

Cal. 5-phyllus. *Petala* 5 (nunc unguibus coalitis). *Squamæ* 5 nectariferæ ad basin germinis. *Capsulae.* 5.

Specific Character and Synonyms.

* *Frutescentes.*

CRASSULA *versicolor*; corollis tubulosis, foliis imbricatis lanceolatis concavis cartilagineo-ciliatis basi connato-vaginantibus, floribus umbellatis.

CRASSULA *versicolor*; erecta, ramosa, foliis oblongo-lanceolatis cartilagineo-denticulatis basi connato-vaginantibus, umbellis geminato-multifloris. *Bot. Reg.* 320.

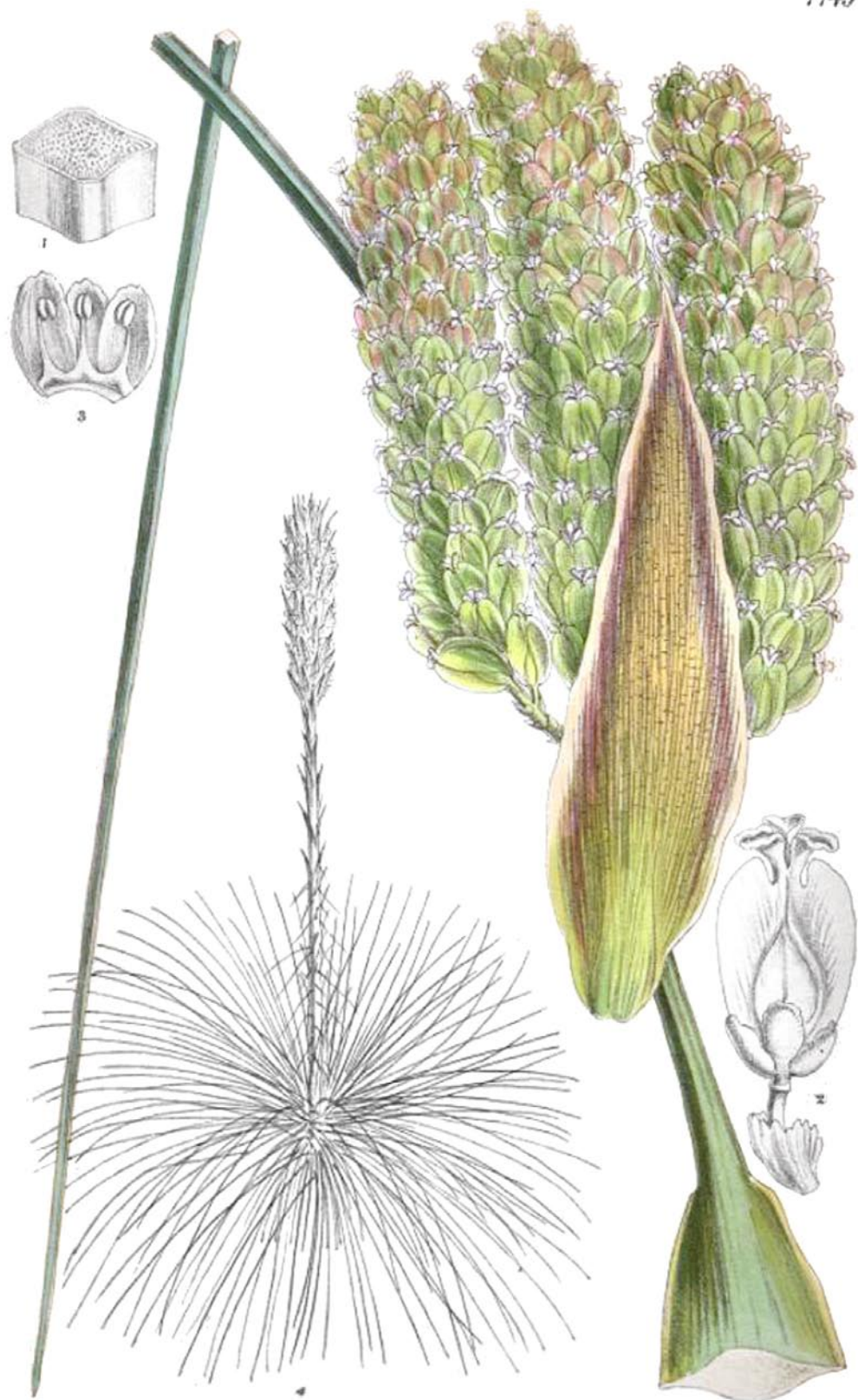
CRASSULA *versicolor.* *Burchell Mss.*

DESCR. *Stem* shrubby, erect, branched. *Leaves* imbricate, lanceolate, hollowed especially towards the base, connate, sheathing, edged with minute cartilaginous ciliæ. *Flowers* in umbels at the extremities of the branches. *Calycine* leaflets subulate, one third shorter than the tube of the corolla. *Corolla* hypocrateriform, with a long tube, formed by the adherent, but separable claws of the petals: *limb* shorter by half than the tube, five cleft: segments somewhat recurved, bright red on the outside, and white within, except a red margin, which gradually extends nearly over the whole. The flowers are sweet-scented in the evening.

This species, on account of the tubular corolla, belongs to DE CANDOLLE's *gt us* LAROCHEA adopted by PERSOON
and

and HAWORTH, also by SCHULTES in the new edition of the *Systema Vegetabilium*. But as this tube is made simply by the adhesion of the claws of the petals, which are more or less separable in all, and in *CRASSULA jasminea* (*supra* 2178) with quite as long a tube, are not at all connected, except at the upper part, this circumstance seems hardly sufficient to found a genus upon. JUSSIEU refers all the tubular species of *CRASSULA* to *COLYLEDON*.

CRASSULA versicolor is a native of the Cape of Good Hope, whence it was introduced by Mr. BURCHELL on his return from his travels in that country, and is indeed a very valuable acquisition to our gardens, as it flowers freely, and requires only to be protected from frost and from damps. Flowers most of the summer. Communicated by Mr. JOSEPH KNIGHT of the Exotic Nursery in the King's Road.



MS. del JN. Fishbach

Vincent, Breckin, Day & Son, Ltd. London

L. Reeve & Co. London

TAB. 7749.

DASYLIRION QUADRANGULATUM.

Native of Mexico.

Nat. Ord. LILIACEÆ.—Tribe DRACÆNEÆ.

Genus DASYLIRION, *Zucc. (Bent. & Hook. f. Gen. Plant. vol. iii. p. 780.)*

DASYLIRION *quadrangulatum*; caudice robusto, foliis numerosissimis densissime confertis 2-pedalibus exterioribus recurvis interioribus erectis rigidis tetragonis e basi dilatata ad medium compressis deinde æquilateris in apicem pungentem sensim attenuatis tactu asperulis marginibus subscaberulis, scapo 5-pedali robusto foliis setaceis elongatis inferioribus longioribus deflexis superioribus brevibus erectis ornato, inflorescentia paniculata e racemis confertis cylindraceis amentiformibus erectis bracteis immixtis constante, bracteis 6–8 poll. longis spathaceis ovato-lanceolatis acuminatis pallide brunneis albo-marginatis deciduis, racemis 4 poll. longis 1 poll. diam. breviter pedunculatis apice rotundatis, floribus densissime confertis imbricatis, pedicellis vix $\frac{1}{2}$ poll. longis supra medium articulatis basi bracteolatis, bracteolis pedicellis brevioribus cupuliformibus hyalinis erosis, perianthii segmentis late oblongis apice rotundatis, ovario compresso, stigmatibus reniformibus stipitatis, fructu $\frac{1}{2}$ poll. longo orbiculari-oblongo trigono valde compresso coriaceo indehiscente basi perianthio induto apice rotundato bilobo stigmatibus sinu insertis, alis amplis, nuce parvo 1-spermo, semine $\frac{1}{8}$ poll. longo ovoideo compresso-trigono, testa pallida coriacea nucleo adhærente.

D. quadrangulatum, *S. Wats. in Proc. Amer. Acad. vol. xiv. (1879) p. 250. Gard. Chron. 1900, vol. i. p. 244.*

Agave striata, var. *recurva*, *Zuccarini, ex Baker in Gard. Chron. 1877, vol. ii p. 556.*

This very remarkable plant is a native of the mountains of the Tamaulipas State of Mexico, at elevations of seven thousand to nine thousand feet, where it was collected by Dr. E. Palmer. It was first described in 1879 by Sereno Watson. But it must have been discovered and seeds sent to Europe before that time, for it was, in cultivation in the Royal Gardens, Kew, in 1877, in which year Mr. Baker mentions it in the *Gardener's Chronicle*, under the name of *Agave striata*, var. *recurva*, of Zuccarini. In its native country the trunk is described as three feet to eight feet in height, and the flowering stalk five feet to ten feet; but the latter attains much larger dimensions in Europe, for Mr. Watson mentions a specimen growing in the Jardin d'Acclimatation of Hyères (under the name of *Xanthorrhæa hastilis*), with a scape and panicle together

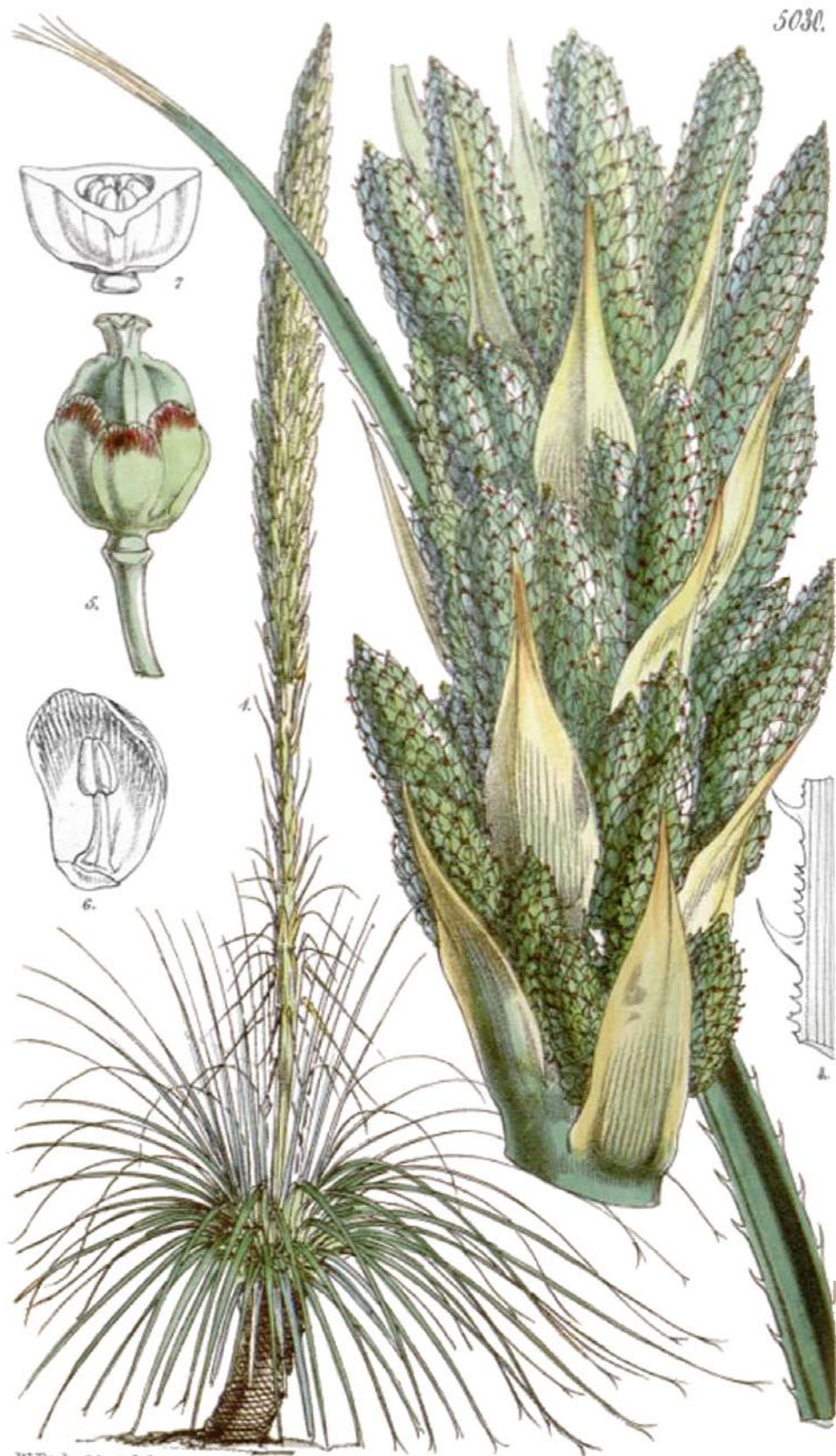
DECEMBER 1ST, 1900.

eighteen feet high, and another also of great size, but not in flower, at the Casino of Monte Carlo, named *D. juncifolium*. The latter specimen was subsequently seen by Mr. Baker in a flowering state, with leaves three feet to six feet long, and scapes fifteen feet to twenty feet high.

The origin of the specimen so long cultivated in the Succulent House of the Royal Gardens, Kew, is unknown. It is a female plant, of very slow growth, the stem being only eighteen inches high; the tuft of leaves is six feet in diameter, the scape eight feet high, and inflorescence two feet.

Descr.—*Trunk* stout, cylindric. *Leaves* (in the Kew specimen) two feet long, exceedingly numerous, densely crowded in a globose head, the outer recurved, inner erect, rigid, tetragonous, flattened from the base to about the middle, narrowed, and equilateral from thence to the pungent tip, surfaces rough to the touch, margins rather rough. *Scape* very stout, clothed with short leaves, the lower of which are deflexed, the upper erect. *Panicle* of numerous, strict, erect racemes of imbricating small green flowers mixed with large white, spathaceous, deciduous bracts, six to eight inches long. *Racemes* about four inches long, shortly peduncled; pedicels about half an inch long, jointed above the middle; bracteoles minute, cup-shaped, membranous, erose. *Segments of perianth* broadly oblong, obtuse. *Ovary* compressed, crowned with three reniform stigmas. *Fruit* orbicular-oblong, trigonous, compressed, about one-third of an inch long, winged all round, tip notched with the stigmas in the sinus, one-seeded. *Seed* minute, ovoid, trigonous.—*J. D. H.*

Fig. 1, transverse section of leaf 2, flowers and bracteole; 3, portion of perianth with stamens:—*all enlarged*; 4, *reduced* view of plant.



DASYLIRIUM ACROTRICHUM.

Bearded-leaved Dasylirium.

Nat. Ord. ASPARAGINEÆ.—DICECIA HEXANDRIA.

Gen. Char. Flores dioici. MASC. *Perigonium* corollaceum, profunde 6-partitum; *foliolis* oblongis, uninerviis, navicularibus, campanulato-conniventibus (patentibus, *Brongn.*); exterioribus paulo longioribus vel brevioribus; præfloratio imbricata. *Stamina* sex, basi foliolorum inserta, plerumque iis breviora. *Filamenta* filiformia. *Antheræ* biloculares, oblonge, utrinque bilobæ, dorso medio affixæ, introrsa. *Pistillum* rudimentarium. FL. FÆM. *Perigonium* maris. *Stamina* antheris effctis; *ovarium* liberum, triquetrum, angulis membranaceis, uniloculare; *ovula* 6, per paria approximata, fundo ovarii affixa, erecta, anatropa. *Columna stylina* brevis, in *stigma* infundibulare margine undulato-plicatum irregulariter lobatum dilatata (*stigma* trilobum; lobis brevibus, ovatis, divergentibus, *Brongn.*). *Fructus* nucumentaceus, abortu monospermus (*akenium*, *Brongn.*), ovato-trigonus, angulis in membranam latam expansis. *Semen* immaturum erectum, fusiforme, utrinque acutum. *Caulis* lignosus, abbreviatus, foliosus, vel elongatus, caudiciformis, apice foliosus, erectus.—Folia e basi semiaplexicauli linearia, superne subulato-angustata, apice marcido sæpe (semper, *Brongn.*) in fila dissolubilia, canaliculata, striata, rigida, margine nunc spinosa, inter spinas denticulato-spinulosa, nunc scabra. Paniculæ terminales, solitariae, erectæ, simplices vel ramosæ, bracteatae. Flores parvi, albi, pedicellati, solitarii vel per 2–4 fasciculato-congesti, in ramulis spicati vel racemosi; pedicellis basi bracteolatis, superne articulatis. Antheræ flavæ.

DASYLIRIUM *acrotrichum*; caulescens, trunco elongato, foliis longissimis e lata basi lineari-subulatis viridibus fasciculo fibrarum emarcidarum terminatis planiusculis striatis rigide serrulatis spinosisque, spinis subulatis sursum curvatis, spica longissima cylindraceo-acuminata composita, spiculis (plant. fœm.) seu racemis cylindricis copiosis dense compactis erectis multifloris, bracteis amplis subæquilongis ovatis acuminatissimis, floribus (fœm.) dense imbricatis.

DASYLIRIUM *acrotrichum*. Zuccar. in *Otto et Dietr. Allgem. Gartenz.* 1838, n. 33. p. 259. Kunth, *Enum. Pl.* v. 5. p. 40.

YUCCA *acrotricha*. Schiede in *Linnea*, v. 4. p. 230, et v. 6. p. 52. Schultes, *Syst. Plant.* v. 7. p. 1716.

ROULINIA *acrotricha*. *Brongn.* in *Ann. des Sc. Nat.* v. 14. p. 320.

DASYLIRION *gracile*. *Hort. Berol.* 1847.

Of late years the greenhouses of botanic gardens have exhibited noble specimens of a very singular set of plants, with
FEBRUARY 1ST, 1858.

much of the habits of very narrow-leaved *Yuccas*, the foliage generally terminated with a pencil or brush of loose parallel rather rigid fibres, now and then sending up a solitary central stem of very small Asparagineous dioecious flowers, of which Zuccarini, in 1842, constituted a genus, to which he gave the not very appropriate name of *Daylirium* (thick or succulent Lily). Some well-grown species adorn the south end of the long succulent-house of the Royal Gardens; and, probably on account of the unusually warm and sunny summer, two of the species threw up their noble flower-stalks, the present one so tall, that the flowering portion soon came in contact with the loftiest part of this house, and it had to be removed into a taller one to perfect its flowering. The genus being (it is stated) always dioecious, we have in the present instance only the female plant. All the kinds (and six are described, though imperfectly so in most cases) are considered to be natives of Mexico, and in their native mountains must form, along with *Cactuses*, a remarkable feature in the scenery. Our plants of this were received from Mr. Repper, of Real del Monte, through the kindness of the Company bearing that name.

DESCR. *Stem* erect, or nearly so; in the individual under consideration about two feet high, and a foot at least or a foot and a half in girth, clothed with the broad, scale-like, withered bases of former years, and crowned by a graceful tuft of slender, pliable, but firm and coriaceous *leaves*, from three to four feet in length, the older and lower ones spreading and recurved, the younger and upper ones erect; all, from a broad base, rather suddenly linear-subulate, terminated by a harsh tuft or pencil of coarse fibres, nearly plane, that is, only slightly channelled on the upper surface, of an ordinary rather yellowish-green colour, finely striated on both sides, of a firm coriaceous texture, but with a graceful downward curvature of the old and lower leaves, the younger and terminal ones erect; the margins cartilaginous, white, and pellucid, cut into very fine sharp serratures, the teeth sometimes double, and beset with strong subulate spines, at distances of about half an inch, more or less, a line long, curved upwards, and of a pale-brown colour, the younger ones colourless. *Peduncle* terminal, solitary, at first rising up somewhat like a head of asparagus, but clothed with erect, imbricated, young leaves; then rapidly increases in size, and attains a height, including the flowers, of fifteen and sixteen feet, the lower part partially clothed with small leaves, which gradually pass upwards into subulate bracteas, and among the spikelets they are large, broad, membranaceous, ovate, sharply acuminate, brownish-green *bracts*, as long as or longer than the spikelets. *Spike* (female) three to four feet long, cylindrical, but slightly acuminate, loaded with the numerous, erect, bracteated *spikelets*, or more properly

racemes. *Pedicels* short, jointed a little below the flower, and there deciduous. *Perianth* of six, erect, imbricated, concave, broad-ovate *sepals*, of a greenish colour, streaked with red at the apex, each enclosing an abortive stamen, shorter than the sepal. *Ovary* (abortive) larger than the sepals, orbicular-oval, with three thick but wing-like angles, and crowned with a deeply three-parted *style*. *Stigmas* triangular. *Cell* solitary, with three erect ovules.

Fig. 1. Entire plant, much reduced in size. 2. Small portion of a female flower-spike, *nat. size*. 3. Apex of a leaf, *nat. size*. 4. Portion of a leaf, *nat. size*. 5. Female flower. 6. Sepal, including the abortive stamen. 7. Transverse section of an ovary:—fig. 5 and 7 *magnified*.



TAB. 6203.

DECABELONE BARKLYI.

Native of Little Namaqualand, S. Africa.

Nat. Ord. ASCLEPIADACEÆ.-Tribe STAPELIÆÆ.

Genus DECABELONE, *Dcne.* (*Benth. et Hook. f., Gen. Plant*, vol. ii., p. 784, *ined.*;
Bot. Mag., 6115).

DECABELONE *Barklyi*; caulibus ramisque crasso-carnosis cactiformibus angulato-costatis, costis sæpissime ad 12 spinosis, spinis tenuibus erectis setis lateralibus duabus deflexis armatis, corona staminea duplici. exteriore tubo stamineo affixa in lobos 10 filiformes apice globuliferos subæquales divisa, interiore squamis apicem versus attenuatis antheris adfixis squamulis brevibus bifidis interpositis.

DECABELONE *Barklyi*, *Dyer, MSS.*

Under Tab. 6115 it was mentioned that the Royal Gardens, Kew, possessed specimens both living and in spirit, as well as drawings and analyses, from H. E. Sir Henry Barkly, Dr. Shaw, and Mrs. Barber, of a second species of *Decabelone* from Little Namaqualand. As was stated there it is closely allied to *D. elegans*, the flowers being extremely similar, but the branches have nearly twice the number of angles; and the two lateral setæ of the spines are more slender and deflexed instead of erect.

The first discovery of this interesting plant is due to H. E. Sir H. Barkly, who sent a sketch of the plant in January, 1874, having found it three years previously growing in the Karoo, near the Orange River. Shortly after Dr. Shaw, who, as well as M'Lea, had found it in the same locality, sent to Kew specimens in spirit, and a careful analysis. Not having seen the description of *Decabelone*, Dr. Shaw rightly recognised the generic distinctness of the plant from other *Stapeliæ*, and proposed that it should constitute a new genus, to be named in honour of the Governor of the Cape. I have endeavoured, as far as the specific name will allow, to give effect to Dr. Shaw's wishes.

The present plate is partly founded upon a fine drawing for which Kew is indebted to Mrs. Barber, partly upon specimen
DECEMBER 1ST, 1875.

mens which flowered at Kew during the past year, and which were sent by Sir H. Barkly.

DESCR. *Stems* succulent, leafless, cæspitose, three to six inches high, with ten to twelve strongly marked angles furnished with processes each bearing one erect and two lateral deflexed slender white spines. *Flowers* borne as in *D. elegans*, occasionally two on a common peduncle, suberect; pedicels one-third to one-half inch. *Calyx* 5-lobed, lobes quarter of an inch long, linear-deltoid. *Corolla* two to three inches long, narrowly campanulate, tube slightly curved, marked much as in *D. elegans*; lobes deltoid, very acute, with occasionally an intermediate tooth. *Staminal-crown* double; exterior of ten similar segments connate at the base and slightly united in pairs, tapering into filiform, capitate, dark violet processes; interior of ten dissimilar processes, five slender and adnate to the anthers, upon which they are incumbent as in *D. elegans*, five alternating with these and one-third as long, broadly deltoid, and bifid. *Anthers* as in *D. elegans*.—*W. T. T. D.*

Fig. 1, Section through exterior staminal-crown, showing andrœcium viewed from above (*magnified*); 2, portion of staminal-crown viewed from within, on the right of the figure the place of attachment is shown of two anthers which have been removed, on the left an anther the form of which has been accidentally distorted by the lithographer; 3, pair of pollen-masses viewed from above (*magnified*).



W. Peck, del. et lith.

Yucca baccata J. & G. J. G.

TAB. 6115.

DECABELONE ELEGANS.

Native of Angola.

Nat. Ord. ASCLEPIADACEÆ.—Tribe STAPELIÆ.

GEN. CHAR.—*Calyx* brevis, 5-partitus, foliolis acuminatis, glandulis herbaceis acutis interdum introrsum interpositis. *Corolla* anguste campanulata, lurida; tubo externe striis maculisque brunneo-purpureis consperso, interne pilis papillæformibus deflexis instructo; limbo 5-fido, laciniis acutis, deltoideis, paullo revolutis. *Gynostegium* imo tubo conditum. *Coronæ stamineæ* lacinia 5, submonadelphæ, alte bifidæ, in fila gracillima apice capitato-incrassatæ attenuatæ. *Antheræ* ovatæ, obtusæ, dorso appendice ligulata incumbente; massæ pollinis horizontales, compressæ, subreniformes, funiculo appendice membranacea lineari munito. *Stigma* muticum, disciforme.—Herbæ *stapelieformes* Africæ australis præcipuæ tropicæ incolæ.

DECABELONE *elegans*; caulibus ramisque stapeliæformibus angulato-costatis, costis sæpissime 6 spinosis, spinis setis lateralibus duabus erectis armatis, floribus vel e ramulorum axillis vel ad fundum inter costas ortis, coronæ stamineæ laciniis basi connatis albis, sursum in fila bina capitata atrovio-lacea gracillima attenuatis.

DECABELONE *elegans*, *Dcne. in Ann. Sc. Nat.* 5^e sér. t. xiii. p. 404, pl 2.

During the month of June of the present year this extremely interesting plant flowered for the first time in England, in the collection of J. T. Peacock, Esq., of Sudbury House, Hammersmith. A few weeks later flowers were also produced by plants in the Royal Gardens, Kew. The plate has been drawn from Mr. Peacock's specimen, a compliment which is no more than is due to the zeal and enterprise which he has shown in the cultivation of succulent plants. His plant has been grafted on a *Stapelia*, probably *S. Plantii*. It was obtained from Herr Pfersdorf, under the name of *Decabelone Sieberi*, but it appears to be identical with the plant described and figured by Decaisne, which was also obtained from the same cultivator, though the precise native origin was unknown.

The Kew plants were obtained direct from Angola, through the aid of Mr. Monteiro, to whom botanical science is under many obligations in elucidating the still little known Flora of that country, and was found by him at Ambriz, about three miles from the sea, in sand, near a salt marsh or "flat."

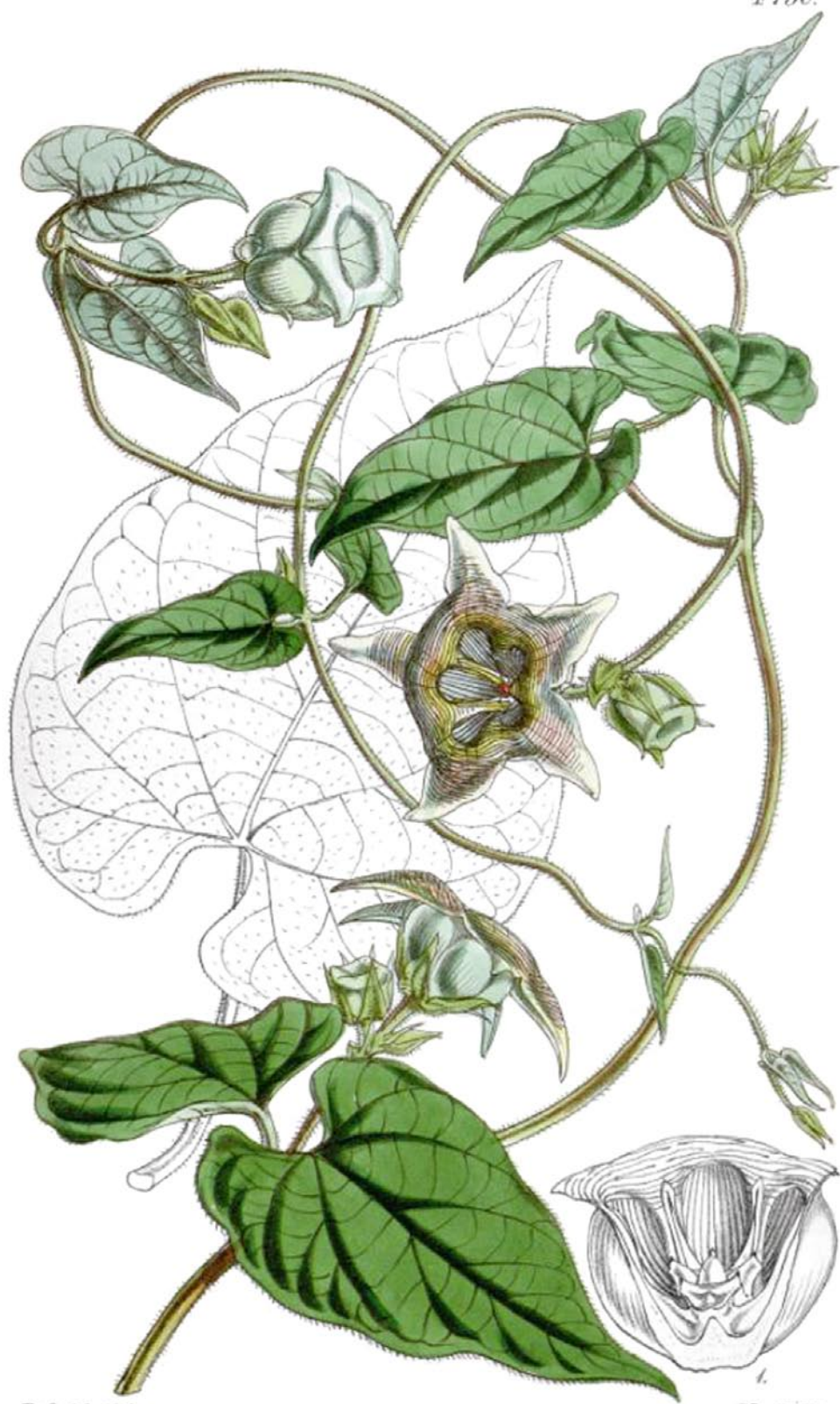
AUGUST 1ST, 1874.

The Kew Herbarium contains a specimen collected twenty years ago, at Loanda, by Dr. Welwitsch, who appears to have been disposed to constitute it a new genus, but subsequently referred it to *Huernia*. He notes that in habit it is "late cæspitosa."

The Royal Gardens, Kew, is also the fortunate possessor of specimens, both living and in spirit, as well as of drawings and analyses from His Excellency Sir Henry Barkly, Dr. Shaw, and Mrs. Barber of a second species, from Little Namaqualand. It is closely allied to *D. elegans*, the flowers being extremely similar, but the branches appear to have more numerous angles, and the two lateral setæ of the spines are more slender, and deflexed instead of erect. I am indebted to Professor Thiselton Dyer for the accompanying revised description of the genus and of this species.

DESCR. *Stems* succulent, leafless, cæspitose, four to six inches high, strongly angled, the angles furnished with patent spinous processes, each bearing two lateral erect barb-like setæ. *Flowers* produced according to Decaisne from the axils of the branchlets, but apparently also from the branches themselves between the spinous angles. *Flowers* sub-erect (the pendent habit given in the plate is due to the plant having been grafted); pedicels one-third of an inch, accompanied by one or two membranous acute bracteoles. *Calyx* 5-lobed, lobes one third to half an inch long, linear-deltoid, acuminate with a small linear herbaceous appendage arising between each pair of lobes on the inner side. *Corolla* narrowly campanulate, 5-lobed, tube externally marked with brownish-purple streaks and spots on a lurid yellow ground, internally furnished with numerous papilla-like deflexed processes and hairs; lobes deltoid, acute, slightly revolute. *Staminal-crown* 5-fid; segments connate at the base, oblong, white, deeply bifid, each tapering into two filiform capitate dark violet processes, becoming ultimately flaccid and entangled. *Anthers* broadly ovate, obtuse, with a dorsal incumbent ligulate appendage; pollen-masses horizontal, compressed, obovato-ensiform with a short funiculus furnished with a linear membranous appendage at the base, where it is attached to the stigmatic gland. *Stigma* disk-like.

Fig. 1, Spinous process from branch viewed from above (*magnified*); 2, longitudinal section through corolla (*nat. size*); 3, longitudinal section through gynostegium—the posterior pair of pollen-masses is represented displaced (*magnified*); 4, andrœcium viewed from above (*magnified*); 5, pair of pollen-masses (*magnified*).



DICTYANTHUS PAVONII.

Pavon's Dictyanthus.

Nat. Ord. ASCLEPIADEÆ.—PENTANDRIA DIGYNIA.

Gen. Char. *Calyx* 5-partitus. *Corolla* speciosa, campanulata, 5-fida, laciniis ovatis obtusiusculis sursum reflexis eleganter reticulato-venosis, rete exili fuscescente. *Corona staminea* tubo adnata, *corpusculis* 5 sinubus oppositis spathulatis carnosulis subglandulosis reducta. *Gynostegium* parvum, tubo corollæ amplo inclusum. *Antheræ* membrana terminatæ, transversim et oblique dehiscentes, parvæ. *Masse pollinis* clavate, subcompressæ, apice pellucido. *Stigma* carnosum, pentagonum, angulis prominentibus.—Suffrutex *volubilis Peruvianus*; folia *cordata*, *membranacea*, *longe petiolata*; pedunculi *petiolo breviores*, 1–2-*flori*; corollæ *speciosæ*, *bipollicares*, *reticulato-venosæ*, Huerniam campanulatam *mentiente Dcne.*

DICTYANTHUS *Pavonii*.

DICTYANTHUS *Pavonii*. *Decaisne*, in *De cand. Prodr.* v. 8.p. 605.

This is one among the remarkable forms of Asclepiadeous plants, a native of New Spain, where it was first detected by Pavon (whose name it bears). It has the habit of *Gonolobus*, or some other *climbing* member of the family, with flowers so much resembling a *Stapelia*, or rather a *Huernia*, that it is said to bear the name of *Stapelia campanulata* in Pavon's MSS. We received our plants from Messrs. Henderson, of St. John's Wood Nursery, and also from Messrs. Rollisons, of Tooting. It requires the heat of the stove, and flowers copiously in September.

DESCR. *Stems* climbing, long, branching, filiform, terete, slightly downy (as is the whole plant, except the flowers), tinged with purple. *Leaves* opposite, on moderately long, slender *petioles*, cordate or cordato-ovate, acuminate, membranaceous, entire, veined and reticulated, having a deep and obtuse sinus at the base. *Peduncles* axillary, solitary, longer than the petioles, but shorter than the leaves, generally three-flowered. *Calyx* cut to the base into five, erecto-patent, lanceolate segments, wit their margins reflexed. *Corolla* large, rotate, with the tube large, thick

and fleshy, semiglobose, pale green, longitudinally striated and having five furrows, so that between the furrows the outer surface is very convex, corresponding with five depressions or cavities, within, which are more distinctly striated with longitudinal fine brown lines than the external surface: the *limb* is broad, cut half-way down into five spreading ovate *lobes*, whose margins are recurved: the whole disc is pale green, beautifully striated concentrically, with fine brown lines which meet and hence become reticulated. The *staminal crown* is adnate with the tube and has five spreading lobes or horns. *Gynostegium* small, conical.

Fig. 1. Vertical section of the tube, showing the cavities within and the staminal crown in the centre:—magnified.



TAB. 5795.

DORSTENIA ARGENTATA.

Silvered-leaved Dorstenia.

Nat. Ord. MOREÆ.—MONÆCIA DIANDRIA.

Gen. Char.—*Receptaculum* carnosum, concavo-planum. *Flores* plurimi i alveolis receptaculi, masculi femineis mixti. MASC. *Alveoli* superficiales. *Perigonium* 0 v. lobi 3 ad orem alveoli. *Stamina* 1 v. plura, filamentis filiformibus; antheræ 2-loculares, globoso-didymæ. FEM. in foveolis receptaculi solitarii. *Perigonium* 0. *Ovarium* breviter stipitatum, ovatum, 1-loculare; stylus lateralis, filiformis, stigmatē 2-fido; ovulum 1, parieti styligeri appensum. *Utriculi* demum circumscissi, receptaculo subsucculento immersi. *Semen* uncinatum, testa crustacea; embryo uncinatus.—*Herbæ* America tropicæ incolæ acaules v. caulescentes. *Folia* varia, radicalia v. caulina et alterna. *Capitula* scapos radicales v. pedunculos axillares terminantia.

DORSTENIA *argentata*; caule e basi radicante prostrato erecto puberulo folioso purpurascente, foliis alternis breviter petiolatis oblongis v. anguste lanceolatis, apice attenuato obtuso apiculato, obscure sinuato-dentatis, supra et subtus ad nervos patentes puberulis siccitate scabridis, disco supra late irregulariter argentatis margine saturate viridi, petiolo brevi costaque subtus fusco-purpureis, stipulis subulatis persistentibus, pedunculis axillaribus, receptaculis, orbicularibus pubescentibus leviter concavis margine processibus brevibus subcapitellatis ornato, alveolis disci femineis marginis masculis monandris, perigonii lobis 3.

A remarkably pretty variegated-leaved stove plant, a native of South Brazil, for which the Royal Gardens are indebted to Mr. Wilson Saunders, F.R.S., of Reigate. It is not described by Miquel in the monograph of the Brazilian species, which has appeared in Martius's *Flora Brasiliensis*, but there are dried specimens in the Kew Herbarium sent by Dr. Fritz Müller, of Sta. Catherine, South Brazil.

DESCR. *Stem* nearly simple, terete, horizontal and rooting for a foot or so, sending up few ascending simple leafy branches six to twelve inches high; branches dull purple, terete, pu-

SEPTEMBER 1ST, 1869.

bescent, almost as thick as a goosequill. *Leaves* numerous, alternate, three to five inches long, oblong- or narrow-lanceolate, narrowed above to an obtuse apiculate tip, and below into the petiole, sinuate-toothed, deep green at the margins, with a broad central silvery zone which is marbled with green at the juncture of the colours, scabridly puberulous above and beneath on the nerves which spread widely from the costa, petiole half an inch to one inch long and midrib below purple; stipules persistent, small, subulate. *Peduncles* axillary, half an inch to one inch long, stout, dull purple, puberulous, suddenly expanding into the peltate orbicular slightly concave receptacle, which is dark green, three-quarters of an inch to one inch in diameter; margin furnished with a series of short obtuse purple capitate conical tubercles, each tipped with a few short hairs. *Flowers of the disc* all female, immersed in simple alveoli. *Ovary* flagon-shaped; styles two, recurved. *Outer flowers* male, in few series; the mouth of the alveoli furnished with three broadly ovate, short, green incurved perianth-lobes. *Stamens* three, surrounding a conical papilla (a rudimentary ovary).—*J. D. H.*

Fig. 1, Receptacle; 2, vertical section of the same :--both magnified.



DORSTENIA ARIFOLIA. ARUM-LEAVED DORSTENIA.

Class and Order.

TETRANDRIA MONOGYNIA.

Generic Character.

Receptaculum commune monophyllum, carnosum, dilatatum, patens, orbiculare aut angulatum, in quo *semina* solitaria nidulantur. *Stam.* 1—5.

Specific Character and Synonyms.

DORSTENIA *arifolia*; foliis cordato-sagittatis undulatim-crenatis demum lobatis, receptaculis suborbiculatis.

DORSTENIA *arifolia*; scapis radicatis, foliis cordato-sagittatis undulatis subdentatis maximis, receptaculis ovalibus. *Lam. Encycl.* 2. p. 317.—*Illustr. t.* 83. *f.* 2. *Willd. Sp. Pl.* 1. p. 682. *Pers. Syn.* 2. p. 557.

DORSTENIA *arifolia*. *Hooker Exotic. Bot. v.* 1. *t.* 6.

DORSTENIA *arifolia* was first discovered by M. DOMBEY, growing in shady places in Brazil, and described and figured by LAMARCK; with his description and figure, both taken from dried specimens, our plant so nearly agrees, that we apprehend it must belong to the same species. LAMARCK describes the leaves without the footstalks, as being ten inches long and three and a half wide, and the receptacles as oval, which in our plant are nearly orbicular, or approaching to square with very rounded angles.

At the time our plant was in flower the leaves were entire in the drawing, but afterwards it produced some that were divided into lobes as in Mr. HOOKER's figure, in which state its aspect is so different from our representation that they might easily be mistaken for two distinct species; but we are informed, in the Exotic Flora, that according to Mr. SHEPHERD,

Mr. SHEPHERD, the early leaves were cordate-sagittate and quite entire, so that however different the drawings seem there can be no doubt but that they belong to the species. M. LAMARCK makes the plant with divided leaves a variety of the other.

We had no opportunity of examining the flower ourselves, but, according to Mr. HOOKER, the male and female are mixed indeterminately, and the male are composed of two stamens without either calyx or corolla.

The genus belongs to the natural order of *Urticeæ*, and some of the species, if not all, are monœcious; PERSOON has accordingly arranged the genus in the twenty-first class of the Linnean System instead of the fourth.

Our drawing was made at the splendid establishment belonging to the Horticultural Society at Chiswick, in September 1823, at which time it flowered in the stove.



DORSTENIA CERATOSANTHE CLEFT DOR-
STENIA.

Class and Order.

MONŒCIA DIANDRIA.

(Nat. Ord.—URTICÆ.)

Generic Character.

Receptaculum carnosum dilatatum, patens, superne papillosum vel squamosum: papillis vel squamis intus florigeris. *Cal.* 0. *Cor.* 0. *Stam.* 2. *Pistillum* receptaculo immersum: *Stylus* bifidus, lateralis. *Pericarpia* monospera.

Specific Character and Synonyms.

DORSTENIA *ceratosanthes*; acaulis, foliis oblongo-cordatis subserratis reticulato-venosis scabridis, receptaculo bipartito, laciniis lineari-acuminatis margine iniatis.
DORSTENIA *ceratosanthes*. *Lodd. Bot. Cab. t.* 1216.

DECR. I am unacquainted with the root of this plant, from the top or crown of which the *leaves* are said immediately spring: these are elevated upon a footstalk, about six to eight inches long, oblong, or ovato-oblong, acuminate, marked with numerous reticulated veins, which contract the substance of the leaf so as to make it blistery on the upper surface, every where rough to the touch, but with points so minute, that they are scarcely visible with a common lens: the colour is very dark green on the upper surface, much paler beneath, where the nerves are very prominent. *Receptacles* upon a scape, shorter than the leafstalk, and compressed upwards, two or three inches long, rounded at the base, cleft from the top almost to the bottom, into two linear-acuminated segments, plane above, keeled beneath, and there furnished with a midrib, the margin papillose and beneath the papillæ several filiform

form laciniaë, or appendages, most numerous on the outside of the segments: these are downy when seen under a microscope. The upper surface of the receptacle is covered with numerous papillæ, of two kinds, the one perforated and covering the cell of the female flowers; the other, which are of a purple colour, when examined carefully, are formed of two concave hemispherical downy scales, each enclosing a stamen, of which the filament is short, and terminated by two nearly-white globular cells, opening by a transverse fissure. *Pistil* having an ovate *germen*, from the side of which springs the *style* with an incrassated base, tapering upwards, and dividing into two rather short filiform spreading *stigmata*. The *style* is protruded through the aperture in the tubercle above mentioned, while the whole of the *germen* is immersed.

This very curious species of *DORSTENIA* was communicated by the Horticultural Society of London to the Liverpool Botanic Garden, where it flowered in the month of April, 1826; but of what particular country it is a native I am ignorant. In the shape of the leaves it is most nearly allied to the young foliage of *D. arifolia*, which is, however, smaller, destitute of that roughness, which, in the present species, is scarcely sensible but to the touch, and they are decidedly sagittate. The receptacle is very singular and quite different from that of every other species with which I am acquainted*.

* I had called this species *D. bifida*, but just as I was on the point of sending the MSS. to the press, I received the 122d No. of Mr. LODDIGES Botanical Cabinet, where I find that it bears the name I have now adopted. It is said to be a native of South America; but of what part is not stated.

Fig. 1. Section of one of the of the Receptacle. 2. Under side of a portion of ditto. 3. The two Scales constituting the tubercle or papillæ which include the Male Flower. 4. Stamen. 5. Pistil:—*More less magnified*.



(2017)

DORSTENIA HOUSTONI. HOUSTOUN'S
DORSTENIA.

Class and Order.

TETANDRIA MONOGYNIA.

(MONÆCENIA TETRANDRIA *Pers.*)

Generic Character.

Receptac. commune 1-phyllum, carnosum, in quo semina solitaria nidulantur.

Specific Character and Synonyms.

- DORSTENIA *Houstoni*; scapis radicatis, foliis cordatis angulatis acutis, receptaculis quadrangulis *Willd. Sp. Pl.* 1. p. 682. *Persoon Syn.* 2. p. 55. *Hort. Kew. ed. alt.* 1. p. 267. *Spreng. in Schrad. Journ.* 180. p.3. f. 1.
- DORSTENIA *Dentariæ* radice, folio minus lacinato placenta quadrangulari et undulato. *Houst. in Phil. Trans. v.* 37. p. 196. f. 2.

The genus DORSTENIA, of which there are several species, is very curious in its construction, the flowers being fixed in a fat fleshy receptacle of various forms. In DORSTENIA *Houstoni* the receptacle is nearly square, and somewhat curled in at the edges. In its organization it approaches very near to the fig; for it is only to imagine the edges to be continued till they meet, and to be united, enclosing the flowers in the centre, and we have an exact fig.

The flowers are very minute; they probably differ in their structure in different species: in our plant they appeared to be monandrous, or at least the stamens to be placed singly without order among the pistils. According to the description of this species in Miller's Dictionary, its stature is much greater than we have observed it; and in HOUSTOUN'S figure above quoted, the

the leaves between the angles are represented as quite entire, not crenated as in cur's, and they are nearly so in the specimen collected in Campeachy by HOUSTOUN himself, still preserved in the Banksian Herbarium; but in no other respect could we discover any difference; in the figure by SPRENGEL, above quoted, the leaves are crenated, as in our plant.

The Contrayerva roots of the shops are probably collected indifferently from various species, certainly from this, according to HOUSTOUN, in Campeachy, where it is indigenous.

Communicated by Messrs. LODDIGES and SONS, in whose stove for some seasons this plant came up spontaneously from the self-sown seeds.



TAB. 5908.

DORSTENIA MANNII.

Native of the Bight of Biafra.

Nat. Ord. MOREÆ.

Genus DORSTENIA, *Plumier*; (*Endl. Gen. Pl.*, p. 278).

DORSTENIA *Mannii*; caule erecto rigido subnodoso simpliciusculo tomentoso, foliis petiolatis elliptico-obovatis acuminatis integerrimis v. sinuato-subdentatis utrinque glabris ad basin angustatam obtusis subcordatisve, stipulis minutis subulatis, pedunculis rameis tomentosis, receptaculis orbicularibus convexis margine processibus tentacula simulantibus elongatis ornato, alveolis masculis et foemineis sparsis, perigonio 0.

Discovered on the river Old Calabar, in 1863, by Mr. Gustav Mann, then the intrepid collector for the Royal Gardens, now a Forest officer serving in the Bhotan province of India, and by whom living plants were sent to Kew, which flowered in November, 1865. It has also been collected in the same locality by the Rev. W. Thomson, the discoverer of *Clerodendron Thomsonæ* and many other fine plants.*

The genus *Dorstenia* is common in Tropical Africa, whence Mr. Mann has sent dried specimens of several species, but of these the present is the most singular, because of the long green processes slightly thickened towards the tips that fringe the receptacle, and pointing in different directions, resemble the tentacles of a sea-anemone; in some herbarium specimens these are one and a half inch long, and much more clubbed at the tip.

* I may here state that *Aristolochia Thwaitesii*, Hook. (Tab. nost. 4918), supposed to have been sent by Dr. Thwaites from Ceylon, proves to be a native of Old Calabar, whence living plants have been sent by Mr. Thomson to the Glasgow Botanic Garden, and communicated to me by its curator, Mr. Bullen.

JUNE 1ST, 1871.

DESCR. *Stem* six to ten inches high, terete, rather flexuous erect, somewhat swollen at the scars of the fallen leaves, densely rather scabridly, but shortly tomentose. *Leaves* four to eight inches long, two and half to four inches broad, rather membranous, elliptic or obovate, acute, narrowed at the small obtuse or subcordate base, dark green, pale beneath, obscurely sinuate-toothed, or quite entire, glabrous but opaque on both surfaces. *Petiole* one quarter of an inch to one inch, pubescent. *Stipules* minute, subulate, persistent. *Receptacle* on the stem at the scars of old leaves, peduncled, orbicular, about one inch diameter, green, pubescent on the back, very convex; margin with ten to fifteen slender, stiff, unequal processes one-half to two inches long, which are thickened towards the tip, radiate outwards and backwards, and point in different directions; peduncle half an inch long; surface of receptacle nearly smooth, green. *Stamens* and *pistils* scattered promiscuously in cavities of the disk, without any perianth.—*J. D. H.*

Fig. 1, Vertical section through the receptacle; 2, portion of ditto, showing stamens and pistil:—*both magnified.*



TAB. 7676.

DORSTENIA PHILLIPSIAE.

Native of Somaliland.

Nat. Ord. URTICACEÆ.—Tribe MOREÆ.

Genus DORSTENIA, *Linn.*; (*Benth. & Hook. f. Gen. Plant.* vol. iii. p. 366.)

DORSTENIA *Phillipsiæ*; caule 3–4-pollicari crassitie digiti minimi erecto lignoso cylindrico basi dilatato conico $1\frac{1}{2}$ poll. diam., superne $\frac{1}{2}$ in. diam., undique grosse cicatricato, apice in ramos breves crassos cylindricos desinente, ramis foliis et inflorescentia terminatis, foliis $1\frac{1}{2}$ –2-pollicaribus breviter crasse que petiolatis lineari-oblongis acutis argute dentatis saturate viridibus glaberrimis, costa valida, nervis utrinque 8–10 patulis, pedunculis axillaribus $1\frac{1}{2}$ –2-pollicaribus, receptaculo carnosio late campanulato puberulo, disco plano $\frac{1}{2}$ – $\frac{3}{4}$ poll. lato margine incrassato in lacinias 6–8 crassas subulatas radiatas flexuosas pollicares fisso, fl. masc. non immersis, perianthio minimo papilloso, staminibus 2, fl. fem. alveolis profundis immersis, stylo filiformi integro exserto, stigmatibus punctiforme.

D. *Phillipsiæ*, *Hook. f.*

This remarkable plant belongs to a section of the genus *Dorstenia*, the species of which have the habit of diminutive trees, with very stout, leafless, cylindric, scarred trunks, sparingly, shortly branched above, and terminal clusters of leaves. The type of the section is *D. fœtida*, Schweinf. & Engler (*Monogr. Afr. Pl.* p. 26) which is *Kosaria fœtida* of Forskahl's *Fl. Ægypt. Arab.*, well figured at tab. 20 of his *Icones*, a native of Arabia Felix. (Other synonyms are *Cosaria Forskahlii*, Gmel., and *Dorstenia radiata*, Lamk.). A few other species are natives of Nileland, Abyssinia, and Arabia. Amongst the latter is *D. arabica*, Hemsl. (*Hook. Ic. Pl.* t. 2503), collected in S.W. Arabia by the late Mr. Bent. *D. Phillipsiæ* is closely allied to *D. fœtida*, but differs in the stem being erect from a dilated conical base, in the sharply toothed leaves, in the long peduncles of the receptacle, and in the much larger size of the latter, which has thickened margins, and fewer, much longer rays.

D. Phillipsiæ is another of the new and very interesting plants brought by Mrs. Lort Phillips and Miss Edith Cole from Somaliland, of which *Kleinia peendula*, t. 7659, and *Kalanchoe flammea*, t. 7595, are other examples. A plant was presented to the Botanic Garden of the University

SEPTEMBER 1ST, 1899.

of Cambridge, which flowered there in November, 1898, and was sent to me for figuring by the Curator, Mr. Lynch, A.L.S.

Descr.—*Stem* three and a half inches high, erect from a conical base an inch and a half in diameter, thence tapering upwards to half an inch diam., terminating in short, thick, spreading branches with leafy tips, whole surface of stem pale brown, covered with large quadrate scars. *Leaves* one and a half to two inches long, shortly stoutly petioled, linear-oblong, acute, sharply toothed, dark green, glabrous, paler beneath, nerves eight or ten pairs, spreading, prominent beneath. *Peduncles* axillary, one and a half to two inches long, stout, smooth. *Receptacle* broadly campanulate, with as many ribs as there are arms, disk one half to three-quarters of an inch in diam., flat, margins thickened all round, giving off six to eight subulate, tortuous or flexuous arms an inch long. *Male fl.* minute, superficial on the disk, two-lipped, thickly papillose; stamens two. *Fem. fl. Ovaries* sunk in cavities of the disk; style basal, filiform, quite entire, glandular, exserted. *J. D. H.*

Fig. 1, Section of receptacle with male and fern. fl ; 2, upper portion of style; 8, male fl.; 4, ovary:—*All enlarged.*



DORSTENIA TUBICINA. PEZIZA-FLOWERED
DORSTENIA.

Class and Order.

MONÆCIA DIANDRA.

(Nat. Ord.—URTICÆ.)

Generic Character.

Receptaculum carnosum, dilatatum, patens, superne papillosum vel squamosum: papillis vel squamis intus florigeris. *Cal.* *. *Cor.* *. *Stam.* 2. Pistillum receptaculo immersum. *Stylus* bifidus lateralis. *Pericarpia* monosperma.

Specific Character and Synonyms.

DORSTENIA *tubicina*: læviter pubescens, foliis cordato-oblongis denticulatis. scapis radicalibus, receptaculis poculiformibus margine squamoso-crenatis.

DORSTENIA *tubicina*. Ruiz et Pavon *Fl. Per.* v. 1. p. 65. t. 202. f. 6. Pers. *Syn. Pl.* v. 2. p. 557. Spreng. *Syst. Veget.* v. 3. p. 777.

DESCR. *Root* large, in proportion to the size of the plant, woody, subfusiform descending, truncated or præmorse at the extremity, having a few simple, or branching fibres, powerfully aromatic. From the summit of the root arise many green, fleshy, small scales, among which are inserted the leaves and scapes. *Leaves* (as indeed is the whole plant) slightly pubescent, cordato-oblong, denticulate at the margin, reticulato-venose, petiolated, *petiole* about as long as the leaf. *Scapes* about equal in length with the *petioles*, terminated by a peziza, or wine glass-shaped receptacle, whose margin is incurved and crenated with granulated scales. *Flowers* numerous, of the male there are two *stamens* within a tubercle or swelling, which is purple, lacerated at the edge or mouth, and apparently imperfectly

imperfectly two lipped. *Filaments* much protruded, white, the *base*, or that part within the *tubercle*, much dilated. *Anthers* purplish, two lobed. *Pistils*: *Germen* entirely immersed in the fleshy substance of the receptacle, ovate, having a lateral *style* which is protruded through a perforation in a tubercle on the surface of the receptacle, its upper part purple. *Stigmas* bifid, purple.

This rare and curious species of *DORSTENIA* seems to have been hitherto only known, by the figure and description of RUIZ and PAVON, as of Peruvian origin, it is now ascertained to be a native of Trinidad, whence, by the favor of his Excellency, Sir RALPH WOODFORD, plants were sent to the Glasgow Botanic Garden, where they flowered in August, 1817. The plants differ in nothing from the figure of RUIZ and PAVON, except in being smaller; which is probably owing to their not yet having acquired their full vigour. The receptacle almost exactly resembles in shape some of the larger stipitate species of *Peziza*; and, in one instance, I found it thin, foliaceous, and veined, as if, being abortive, it was about to change into an actual leaf.

The fragrance of the root, has induced the inhabitants of Peru, to employ it in the room of *DORSTENIA Contrayerva*.

Fir. 1. Section of a Receptacle. 2. Male Flower, consisting of two Stamens within their Tubercle. 3. Single Stamen. 4. Female Flower within the receptacle.—More or less *magnified*.



M. S. del. J. N. Fitch lith.

Vernant Brothers Day & Son Lith.

L. Reeve & Co. London.

TAB. 8616.

DORSTENIA YAMBUYAENSIS.

Belgian Congo.

URTICACEAE. Tribe MOREAE.

DORSTENIA, Linn.; *Benth. et Hook.. f. Gen. Plant.* vol. iii. p. 68.

Dorstenia yambuyaensis, *De Wild. in Ann. Mus. Congo*, sér. 5, vol. ii. p. 241; vo. iii. p. 66, t. 5, p. 67, fig. 2 et 3; affinis *D. Mannii*, Hook, f. sed receptaculi processubus multo longioribus et pinnatisectis differt.

Herba ad 30–50 cm. alta. *Caulis* erectus, dense subhispido-pubescent. *Folia* alterna; petioli 6–10 mm. longi, subhispidi; *laminae* 7–16 m. longae, 4–7 cm. latae, elliptico-lanceolatae, abrupte et obtuse acumatae, basi cuneatae, margine irregulariter dentatae dentibus 1·5–7 mm. longis obtusis, utrinque glabrae, supra nitidae. *Stipulae* 8–10 m. longae, filiformes, hispidulae. *Pedunculi* axillares, solitarii, 2·5–4·5 cm. longi, subhispidi. *Receptacula* angulato-orbiculata disco 1·5–2 cm. diametro, anguste alata et processubus 1–11 cm. longis circumdata processubus longioribus basi pinnatisectis, dorso tenuiter subhispida, viridia. *Flores* masculi 2–4-andri. *Flores feminei* inter masculos dispersi; ovarium ovoideum in stylum bifidum attenuatum.—N. E. BROWN.

The interesting *Dorstenia* which we figure here is a native of the Belgian Congo, in some districts of which territory it is plentiful. For its introduction to cultivation we are indebted to the efforts of the Director of the Botanic Garden at Eala in the Equatorial Province, whence living plants appear to have reached the Colonial Garden at Laeken near Brussels about the year 1907. It first became known to English horticulture in October, 1910, when a plant was exhibited at a meeting of the Royal Horticultural Society by Messrs. J. Veitch and Sons on behalf of the Director of the Royal Botanic Garden at Brussels. This plant was thereafter presented to the Gardens at Kew, and forms the subject of our illustration. *D. yambuyaensis* is a plant of erect habit and produces its flowers at the tips of slender axillary peduncles when it is about a foot and a half high. As an addition to our tropical greenhouses this species is remarkable for the much elongated pinnatisect processes of the receptacle, a character which at the same time readily distinguishes it from its congeners.

JUNE, 1915.

The plant requires a stove temperature and grows well and flowers freely if given a light rich soil. Propagation is readily effected by means of cuttings of the young shoots inserted during the summer months.

DESCRIPTION.—*Herb*; stems erect, $1-1\frac{1}{2}$ ft. in height, closely and rather hispidly hairy. *Leaves* alternate, elliptic-lanceolate, abruptly and bluntly acuminate, base cuneate, margin irregularly toothed, the teeth obtuse, 3–6 in. long, $1\frac{1}{2}-3$ in. wide, glabrous on both sides, dark green and shining above, paler and dull beneath; petiole. $\frac{1}{4}-\frac{1}{3}$ in. long, rather hispidly hairy; stipule $\frac{1}{8}-\frac{1}{3}$ in. long, filiform, slightly hispid. *Peduncles* axillary, solitary, $1-1\frac{3}{4}$ in. long, rather hispidly hairy. *Receptacles* angularly orbicular, disk $\frac{2}{3}-\frac{3}{4}$ in. across, narrowly winged and giving off a number of marginal processes varying in length from $\frac{1}{3}$ in. to over 4 in., the longer processes pinnatisect near their bases, all green and very sparingly hispidly hairy on the back. *Male flowers* with 2–4 stamens. *Female flowers* interspersed among the males; ovary ovoid, narrowed into a 2-fid sublateral style.

Fig. 1, receptacle, seen in section; 2, a male flower; 8, rudimentary ovary of the same accompanied by two stamens; 4, a single stamen showing the inflexed anther of a young flower; 5, ovary:—*all enlarged*.



TAB. 6245.

DUVALIA POLITA.

Native of South Africa.

Nat. Ord. ASCLEPIADEÆ.—Tribe STAPELIÆ.

Genus DUVALIA, *Haw.* (*Synops. Pl. Succ.* p. 44,—*Benth. and Hook. f. Gen. Plant.* vol. ii. p. 784).

DUVALIA *polita*; humilis, glabra, caulibus ramisque decumbentibus radicantibus elongato-clavatis 6-angulatis, angulis obtusis dentatis, dentibus longis subulatis patentibus, utrinque basi denticula parva præditis, floribus aggregatis circiter 3–4 e mediis summisve ramulis, pedicellis pollicaribus, sepalis subulatis glabris, corolla diametro pollicari fusco-purpurea nitidissima lobis ovatis acuminatis erecto-patentibus apice recurvatis, marginibus parum replicatis basi pilis longis clavatis purpureis fimbriatis, faucis annulo minutissime scabro pallidiore, corona exteriori sordide rubro-purpurea. interiore sordide aurantiaca:

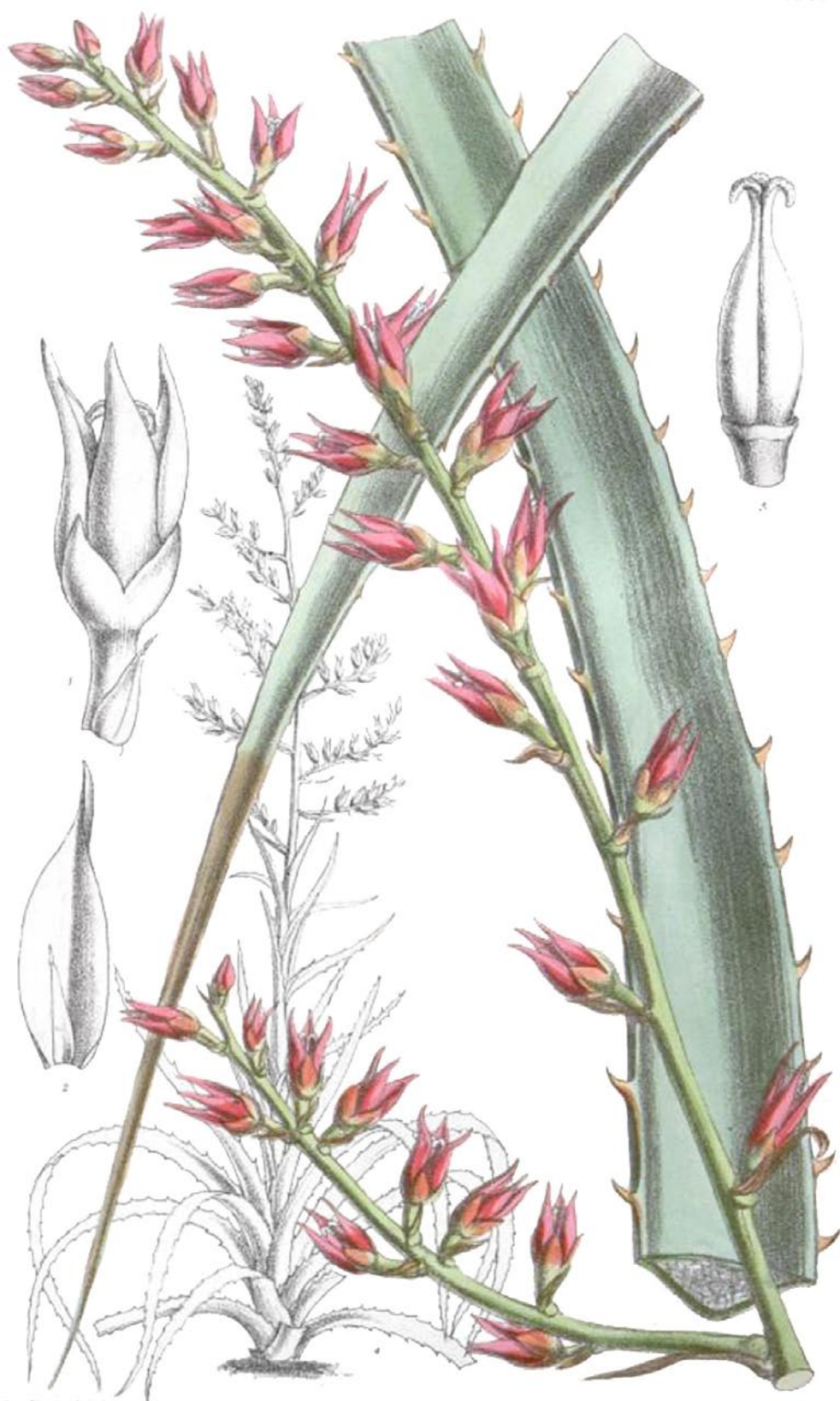
Duvalia polita, *N. E. Brown*, in 'Gardeners' Chronicle,' 1876, vol. vi. p. 130.

The plant here figured and described is one which flowered in the Royal Gardens, Kew, in the summer of 1874 and is now coming into flower again. Its history and the precise locality from which it came are unknown, although not uncommonly cultivated by Stapelia growers under the names *Stapelia polita* and *S. echinata*. With the exception of *Duvalia Corderoyi* (Tab. nos. t. 6082) it is the finest of the genus, and is remarkable on account of its regularly 6-angled stems and very shining corolla, the lobes of which are less replicate than those of any other species in the genus.

DESCR. *Stems and branches* elongate, 2–3 inches long, about $\frac{1}{2}$ in. thick, somewhat clavate, especially when young, more or less decumbent and rooting, (not so erect as in the figure), glabrous, dull green or purplish, 6-angled; angles obtuse, toothed; teeth long and spreading, subulate, furnished at their base with a minute tooth on each side. *Flowers* 3–4 together, opening successively; pedicels about 1 inch long, glabrous, purplish. *Calyx-lobes* subulate, $\frac{1}{4}$ inch long, glabrous, dull green. *Corolla* 1 inch in diameter;

lobes ovate-acuminate, erect-spreading, a little recurved at the apex, brownish-purple, very smooth and polished, the margins very slightly folded back and fringed towards their base with long, vibratile, clavate, purple hairs; annulus (orb) very minutely scabrid, a little paler than the lobes (but not so pale as in the figure), and opaque. *Outer corona* chocolate-red or dark purplish-red; processes of inner corona dull orange. *Pollen-masses* dull yellowish. *N. E. Brown.*

Fig. 1 and 2, Teeth on angles of branches; 3, flower: 4, pollen-masses; *all magnified.*



M.S. del J.N. Pich. lith.

Reeve & Co London

Vincent Brooks Day & Son imp

TAB. 7340.

DYCKIA DESMETIANA.

Native probably of Southern Brazil.

Nat. Ord. BROMELIACEÆ.-Tribe PITCAIRNIEÆ.

Genus DYCKIA, *Schultes*; (*Benth. et Hook. f. Gen. Plant.* vol. iii. p. 667.)

DYCKIA *Desmetiana*, acaulis, foliis 20–30 dense rosulatis ensiformibus crassis rigidis bipedalibus facie obscure viridibus dorso subtiliter striatis aculeis marginalibus ascendentibus uncinatis, pedunculo elongato foliis pluribus reductis prædito, floribus in racemis laxis racemosis dispositis, pedicellis brevibus crassis ascendentibus, bracteis ovatis parvis, sepalis ovatis viridibus, petalis ovatis acuminatis rubris calyce duplo longioribus, staminibus petalis distincte brevioribus filamentis applanatis, ovario ovoideo stylo brevi apice stigmatoso tricuspidato.

Bromelia Desmetiana, *Hort.*

This new *Dyckia* differs from all the species previously known by its red flowers. It has been in cultivation in the Cactus house at Kew for several years, under the name of *Bromelia Desmetiana*, but only flowered last February for the first time, and proved to be not a *Bromelia*, but a *Dyckia*. It was purchased several years ago at the sale of the collection of the late Mr. J. T. Peacock, of Sudbury House, Hammersmith, and, I believe, was procured by him from De Smet, of Ghent. The *Dyckias* all inhabit the South of Brazil and the neighbouring regions, and are amongst the few *Bromeliaceæ* that require cool treatment. Thirty-five species are now known, only a small proportion of which have been brought into cultivation.

Descr.—Acaulescent. *Leaves* twenty or thirty in a dense rosette, ensiform, thick, rigid, recurving, two feet long, two inches broad at the base, narrowed gradually to a long point, dull green, and faintly striated on the face, distinctly striated with green and white on the back; marginal prickles uncinatè, ascending, pungent. *Peduncle* two feet long, bearing many small, linear reduced leaves. *Panicle* lax, rhomboid, two feet long; racemes lax, the end

FEBRUARY 1ST, 1894.

one eight or nine inches long; pedicels short, thick, ascending; bracts small, ovate. *Sepals* ovate, greenish, a quarter of an inch long. *Petals* ovate, acuminate, pinkish red, twice as long as the sepals. *Stamens* much shorter than the petals; filaments flattened. *Ovary* ovoid; style short, tricuspidate at the stigmatic apex.—*J. G. Baker.*

Fig. 1, A flower; 2, petal and stamen; 3, pistil:—*All enlarged.*



W. Peck del. et lith.

Vincent Brookes Day & Son Imp.

TAB. 6294.

DYCKIA FRIGIDA.

Native of Brazil.

Nat. Ord. BROMELIACEÆ.—Tribe POURRETIEÆ.

Genus DYCKIA, *Schult.fil.* (*C. Koch in Append. iv. ad indic. Sem. Hort. Bot. Berol. ann. 1873*).

DYCKIA *frigida*; acaulis, robusta, foliis dense rosulatis patenti-recurvis e basi $1\frac{1}{2}$ –2-pollicari ad apicem pungentem sensim acuminatis concavis supra viridibus lucidis subtus striolatis glaucis marginibus et subtus apicem versus spinis corneis remotis uncinatis onustis, scapo 2-pedali robusto bracteato, bracteis ovato-subulatis spinoso-acuminatis, panícula pedali robusta furfuraceo-tomentosa griseo-brunnea ramis basin versus nudis, floribus subconfertis, bracteolis ovato-subulatis acuminatis flores æquantibus, sepalis oblongis obtusis furfuraceis viridibus, petalis late unguiculatis lamina late ovata obtusa ochracea, filamentis crassis cum petalis basi in tubum connatis, antheris oblongis incurvis, ovario angusto, stigmatibus brevibus, capsulæ perianthio duplo longioris carpellis liberis loculicidis.

POURRETIA *frigida*, Hort. Lind.

I advance this as a new species with much hesitation, having no better means of discriminating the species of this difficult genus than is afforded by C. Koch's *Conspectus*, quoted above, from which it would appear to be allied to the *D. remotiflora*, Ott. and Dietr., and *D. altissima*, Lindl. Bot. Reg. 1841, Misc. p. 84, (erroneously cited as *gigantea*, by Lemaire), from both of which it differs by its almost free filaments (not attached to the length of the claw of the petal). From *D. Princeps*, Lemaire (Ill. Hort. t. 224–5), it appears to differ in the smaller flowers and longer sepals, but it is certainly very closely allied both to that plant and to those above mentioned.

The species of *Dyckia* are mostly Brazilian, and some of them come from the colder southern provinces. This is probably the case with the accompanying plant, which flowered freely in the cool half of the succulent house, at Kew, in February of the present year, and is now maturing its capsules. It was received from Messrs. Linden, under the name of *Pourretia frigida*.

MAY 1ST, 1877.

DESCR. A stemless aloe-like herb. *Leaves* densely rosulate, sixty to eighty together at the crown, one and a half to two feet long, one and a half to two inches broad at the base, gradually contracted from thence to the pungent's point, spreading and recurved, smooth and concave above, glaucous striolate and rounded on the back, margins and middle-line at the back towards the apex armed with stout hooked yellow-brown spines one quarter of an inch long. *Scape* lateral, ascending, stout, and as well as the inflorescence clothed with pale furfuraceous down; covered densely below and more sparingly above with bracts, the lower of which are four to six inches long, erecto-patent and lanceolate, the upper much smaller and triangular-subulate. *Panicle* deltoid, a foot long, with few stout spreading branches which are flowerless at the base; bracts ovate-lanceolate, recurved. *Flowers* three-quarters of an inch long, on very short stout green pedicels that gradually pass into the swollen green base of the perianth. *Sepals* oblong, obtuse, green, furfuraceous; rather shorter than the broadly clawed petals, the blades of which are ochreous, broadly ovate, obtuse, spreading. *Filaments* united at the base with the petals into a rather membranous tube, broad, stout; anthers oblong. *Ovary* narrowly ovoid; stigmas very short. *Capsules* twice as long as the perianth, divided to the axis into three loculicidal carpels.—*J. D. H.*

Fig. 1, Whole plant much reduced ; 2, leaf and, 3, panicle of the natural size; 4, flower; 5, the same with 2 sepals and a petal removed :--all magnified.



(3449)

DYCKIA RARIFLORA. FEW-FLOWERED
DYCKIA.

Class and Order.

HEXANDRIA MONOGYNIA.

(Nat. Ord.—BROMELIACEÆ.)

Generic Character.

Cal. triphylo-tripartitus; laciniaë (v. foliola) subaquales, erectæ, (nunquam spirales,) ellipticæ, concavæ. *Cor.* urceolato-subcampanulata; *petala* erecta (nec spiraliter sibi incumbentia), crassiuscula, obovato-rhomboidea, basi nuda. *Filam.* lanceolata, acuminata, ad $\frac{1}{3}$ — $\frac{2}{3}$ in cylindrum basi petalorum adnatum connata. *Antheræ* erecta, ovato-lanceolata, basi sagittato-emarginatâ affixæ. *Germen* pyramidal-oblogum, trilobum, tripatibile, triloculare, tri-valve; loculis polyspermis, apice vacuis, valvulis concavis, coriaceis, marginibus introflexis dissepimenta formantibus; *ovulis* angulo intero loculorum biseriatim affixis. *Styl.* brevissimus v. subnullus (?) tripartibilis. *Stigmata* 3, patentia, apice bifida. *Schult. fil. Martius Fl. Brasil. ined.*

Specific Character and Synonym.

DYCKIA* *rariflora*; foliis lineari-subulatis recurvo-patentibus, spicâ rariflorâ, bracteis membranaceis adpressis, calyce acutiusculo dimidio brevioribus.

DYCKIA *rariflora*. *Schultes fil. in Syst. Veget.* 7. 1195.

We received this plant, which is a native of Brazil, from the liberal conductors of the Botanic Garden, Berlin, in 1832.

* So named in honor of the Prince de SALM DYCK, distinguished for his knowledge of Succulent Plants, and his noble Collection of them in a living state.

1832. It is very handsome, and flowered, for the first time, in the stove of the Botanic Garden, Edinburgh, in June, 1835.

DESCR. *Stem* short, stout. *Leaves* (seven inches long, four to six lines broad at the base) crowded, subulate, spreading, deflexed in the upper half, rigid; above, when young, channelled, afterwards flat, of an uniform dark-green colour, shining; below rounded, glaucous, striated; *teeth* aristato-spinous, distant, spreading, straight or hooked backwards or forwards, dark brown. *Flower-stalk* (two feet high) elongated, erect, somewhat woolly at the top, scaly, the scales woolly, adpressed, and clasping, below resembling reduced, suberect leaves, above less acuminate: membranous, and marcescent. *Flowers* (about twelve) scattered loosely near the top of the stalk, without pedicels, arising in the axils of the scales, spreading, orange-coloured. *Calyx* three-parted, segments rigid, concave, ovate, overlapping at the base, adpressed, twice as long as the scales. *Corolla* twice as long as the calyx, trifid, triquetrous when fully expanded, nectariferous at the base; segments slightly unequal in breadth, rhomboid, elongated at the base, spreading along the centre, compressed on the sides, somewhat undulate, united at the base with the calyx into a fleshy mass. *Stamens* six, inserted into the corolla, but alternately in the centre of the segments, and towards the edge so as to be opposite to the sepals, subexserted; *filaments* broad, fatten, slightly tapering at the apex; *anthers* bilocular sagittato-oblong, bursting along the front, attached at the bottom of the sinus to the filament, and placed on the face of a broad connective; *pollen granules* minute, yellow, oblong. *Pistils* shorter than the stamens; *style* trifid, segments twisted together, and towards the apex each on its own axis, so as to give the linear *stigma* a spiral form. *Germen* oblong, three-lobed, lobes cohering in the centre; *ovules* numerous, rounded, flattened from being crowded above each other, attached in two rows within each loculament to a central receptacle. *Graham*.

Fig. 1. Stamens. 2. Pistil: *magnified*.



ECHEVERIA CANALICULATA.

Channelled-leaved Echeveria.

Nat. Ord. CRASSULACEÆ.—DECANDRIA PENTAGYNIA.

Gen. Char. Calyx quinquepartitus; laciniis foliiformibus, erectis. *Corolla* perigyna, quinquepartita; laciniis erectis, crassis, rigidulis, nervo medio incrassato, basi subtrigonis acutis. *Stamina* 10, imæ corolla inserta, inclusa. *Squamæ hypogynæ* breves, obtusæ. *Ovaria* 5, libera, unilocularia; *ovulis* ad suturam ventralem plurimis. Capsule folliculares, 5, in stylos subulatos attenuatæ, liberæ, intus longitudinaliter dehiscentes, polyspermae.—Frutices Mexicani, *carnosi*; foliis *alternis*, *caulinis* v. *rosulatis suboppositis*, *integerrimis*, *enerviis*; floribus *secus rachin* v. *secus cymæ ramos sessilibus*, *coccineis* v. *flavis*. *Endl.*

ECHEVERIA *canaliculata*; caule erecto crasso brevi, foliis rosulatis oblongis acuminatis crassis carnosis glauco-rufescentibus superne canaliculatis, ramorum elongatorum floriferorum foliis remotis minoribus angustioribus basi gibbosis, racemis elongatis bracteatis, sepalis lineari-lanceolatis patenti-recurvis, corollæ tubo brevissimo dilatato laciniis lineari-lanceolatis erectis apicibus subpatentibus.

Among the Crassulaceous plants the species of *Echeveria*, though straggling in habit when flowering, are eminently worth cultivating in our greenhouses. The flowers are often bright-coloured, and the leaves are very varied in form, thick and fleshy, more or less glaucous, and more or less tinged with red or purple. The present is not one of the least interesting, and makes a good appearance among its allies in the month of April in the succulent-house of the Royal Gardens of Kew. Plants of it were received from Mr. Staines from the Real del Monte mountains of Mexico, many years ago. I do not find any described species to correspond with it. Its nearest affinity is probably the *E. Scherii* of Dr. Lindley (Bot. Reg. vol. xxxi. t. 27); but the rosulate leaves are widely different in the two, broadly spatulate in the latter, oblong and tapering and deeply channelled in our present species.

DESCR. *Stem* short, thick, between fleshy and woody, erect, marked with the scars of fallen leaves. When not in a flowering state, all the leaves are rosulate, crowded, patent, four to six inches long, oblong or somewhat strap-shaped, thick, fleshy, tapering

gradually upwards into a very slender almost filiform point, deeply channelled above, semiterete beneath, glaucous but much tinged with purple. *Flowering stem* or *branch* elongated, one and a half to two feet high, its lower leaves the same as the rosulate ones, the rest are placed far apart (yet numerous), of the same shape, but smaller than the rest, with a gibbosity or blunt spur at the base beneath (not dilated like the rosulate ones), gradually passing upwards into small, very glaucous, oblong-obtuse *bracteas*. *Raceme* a span or more long. *Pedicels* half an inch or more long, with a few minute subulate *bracteoles*. *Calyx* of five, equal, linear-lanceolate, patenti-deflexed, glaucous *sepals*, much resembling the bracteas. *Corolla* nearly an inch long, rather bright brick-red, orange within. *Sepals* five, erect, close-placed, united at the base into a short dilated five-angled tube, the segments linear-lanceolate, the apices moderately spreading. *Stamens* quite included, five inserted at the base of the corolla, five smaller ones a little higher up. *Anther* oblong. *Ovaries* five, narrow, oblong, subcoadunate: at the base of each is a conspicuous, suborbicular *gland*, with a depression on the upper side. *Styles* slightly twisted. *Stigma* globose.

Fig. 1. Petal and three stamens. 2. Pistils and hypogynous glands:—*magnified*.



ECHEVERIA RACEMOSA. RACEMED ECHE-
VERIA.

Class and Order.

DECANDRIA PENTAGYNIA.

(Nat. Ord.—CRASSULACEÆ.)

Generic Character.

Calyx 5-partitus, sepalis folia referentibus erectis ima basi subconcretis. *Petala* 5, inferne coalita erecta crassa rigidula ad nervum medium crassiora et fere basi trigona acuta. *Stamina* 10 petalis breviora basi cum petalis concreta. *Squamæ* 5 breves obtusæ. *Carpella* 5 in stylos subulatos abeuntia.—Frutices carnosì *Mexicani*. Folia *alterna caulina aut rosulata subopposita integerrima enervia*. Flores *secus rachin at secus cymæ ramos sessiles, coccinei aut flavi*. *D C.*

Specific Character and Synonym.

ECHEVERIA * *racemosa*; foliis rosulatis densis linguæformi-lanceolatis acutiusculis cartilagineo-marginatis, supra convexiusculis subtus convexo-carinatis, caule sparsim folioso simplici vel ramoso racemoso, laciniis calycinis æqualibus acutissimis patenti-reflexis.

ECHEVERIA *racemosa*. *Hort. Claremont.*

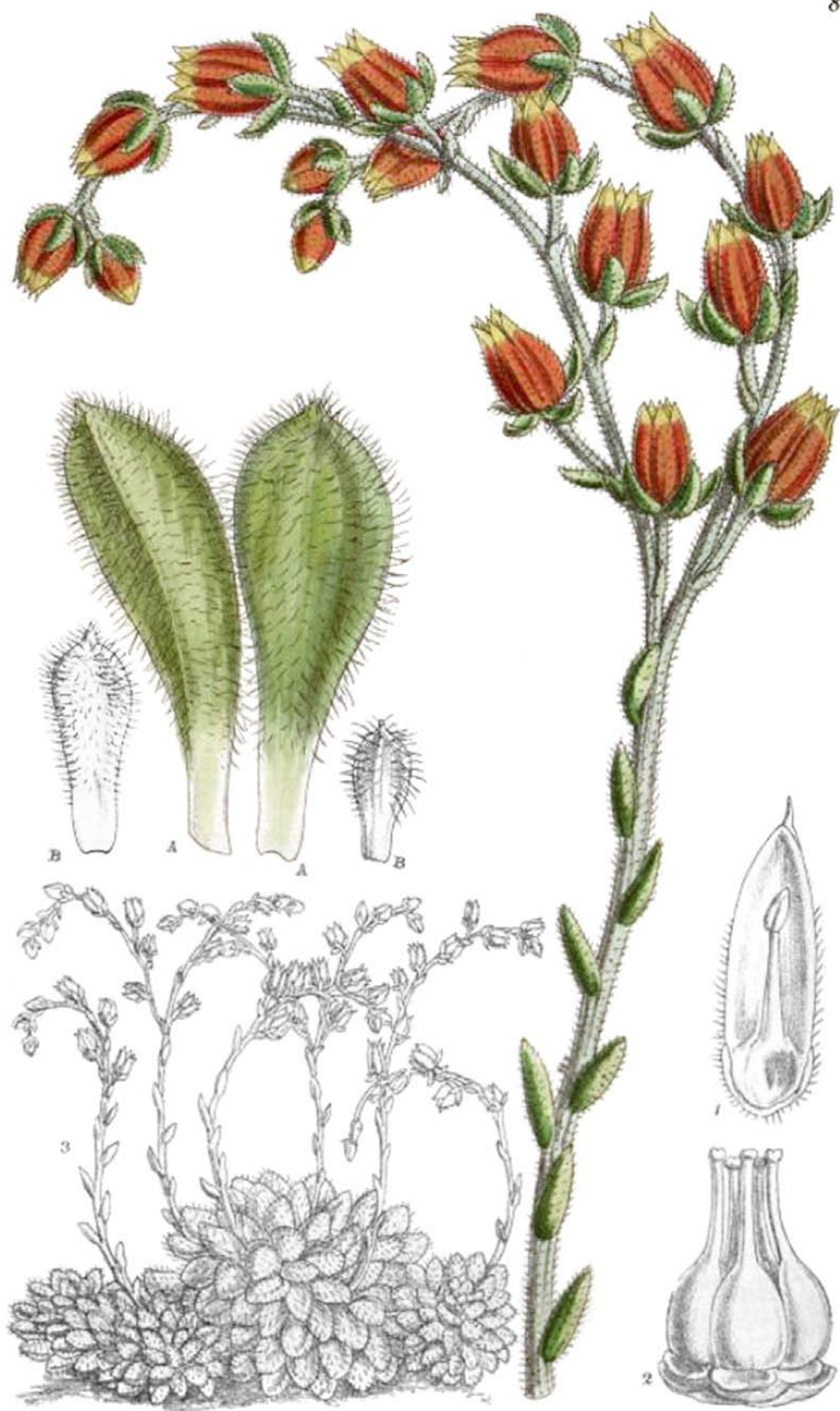
Four species of this handsome Genus are described by DE CANDOLLE, all natives of Mexico or California, and a fifth (Mexican one) is described by HAWORTH: from all these our plant differs in the inflorescence, and still more in the

So named by M. DE CANDOLLE in honor of ECHEVERA, a Mexican botanical painter.

the foliage. The Glasgow Garden has received it from the Berlin Garden, but without a name, and from that of Claremont under the appellation here adopted. Of its history, I regret to say I know nothing: it is probably a native of Mexico. The flowers are produced copiously in the greenhouse, in the summer and autumn months.

DESCR. Succulent, suffruticose. *Barren stems* short, thickly clothed with rosulate tufts of fleshy leaves, of a brownish-green colour and glaucous hue, two to four inches long, in form between lanceolate and linguiform, slightly concave above, convex and keeled beneath, the margin white and cartilaginous: *flowering stems* nearly a foot high, rounded, glaucous, sparingly leafy, with leaves of the same shape as those of the barren stems, but narrower and gradually becoming smaller. *Raceme* elongated, many-flowered. *Pedicels* curved. *Calyx* 5-partite, fleshy, glaucous, the segments ovato-lanceolate, very sharp-pointed. *Corolla* red, of five, erect, carinated *petals*, gibbous at the base, and there united so as to appear monopetalous. *Stamens* ten, five at the base of the petals, and alternate with them, five shorter ones inserted a little above the middle of the petals. *Hypogynous glands* five, small, white, fleshy, one at the base of each germen. *Pistils* five, standing close, erect: *Germen* ovate, tapering into a rather short, slender *style*: *Stigma* obtuse.

Fig. 1. Flower, with the Corolla laid open. 2. Single Pistil, with the Gland at the base:—*magnified*.



M.S. del. J.N. Fitch lith.

Vincent Brooks Day & Son Lith.

L. Reeve & Co. London.

TAB. 8748.

ECHEVERIA SETOSA.

Mexico.

CRASSULACEAE.

ECHEVERIA, DC.; *Rose in N. Amer. Fl.* vol. xxii. p. 13; *Benth. et Hook. f. Gen. Plant.* vol. i. p. 659, sub *Cotyledon*. Linn.

Echeveria setosa, *Rose et Purpus in Contrib. U.S. Nat. Herb.* vol. xiii. p. 45; *Rose in Addisonia*, i. 11, cum icon.; a speciebus coteris foliis et inflorescentiis albo-setosis differt.

Herba succulenta, acaulescens. *Folia* usque ad 100 vel ultra, in rosulam densam 7–10 cm. diametro, 4–7 cm. altam collecta, sessilis, supra fere plana, subtus convexa, oblanceolato-spathulata. ad 5 cm. longa, 1·8 cm. lata, 5 mm. crassa, mucronato-cuspidata, viridis, nitida, pilis patentibus utrinque albo-setosa. *Scapi* a foliorum superiorum axillis orti. 1–4 ex quaque rosula, 10–12 cm. longi, laxe foliati, foliis anguste oblongis. *Inflorescentiae* scorpioideae, simplices vel bifurcatae; bracteae iniores 1–1·5 cm. longae. apice basique angustatae, utrinque convexae, superiores gradatim minores; pedicelli interiores 1–3 cm. longi. *Sepala* patula, lineari-oblonga, viridia, ad 10 mm. longae, 2–3 mm. lata. *Corolla* 10–16 mm. longa, basi rubra, apice flava, intus levis, extra leviter setosa fere ad basin in segmenta lineari-oblonga fissa. *Stamina* 10, inclusa, alba. *CarPELLA* 4–6 mm. longa, in stylum gradatim attenuata; stylus 4–5 mm. longus, viridis.—M. L. GREEN.

The genus *Echeveria* was proposed by Decandolle in 1828 for those species from America which earlier authors had referred to *Cotyledon*, originally founded by Linnaeus on African and Mediterranean plants. The new genus differed from *Cotyledon* mainly in having the petals connate only at the base and the stamens shorter than the petals. In 1865 Bentham and Hooker declined to accept these differential characters as adequate. In their view the only character by which *Echeveria* could be distinguished from *Cotyledon* is to be found in the pentagonal corolla. But floristic convenience at times finds monographic canons unduly severe, and its dictates have induced Dr. Rose to reconsider the verdict of the *Genera Plantarum*. In 1903 this careful student reverted to the view of Decandolle, and two years later definitely

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resuscitated *Echeveria*, which as defined by him, includes some sixty species, mostly Mexican, though some occur in Central America, a few in South America, and one is met with in Texas. It has to be noted, however, that while he accepts the view of Decandolle in preference to that of Bentham and Hooker, the character on which Dr. Rose lays greatest stress is that pointed out in the *Genera Plantarum*; *Echeveria*, Rose, as contrasted with *Echeveria*, DC., must consequently be held to include several South African plants with a pentagonal corolla. This suggests consequences which need not be discussed in connection with *E. setosa*, the species now figured, which has, so far, only received a name in the genus *Echeveria*. This plant, readily distinguished from all its congeners by its setose leaves, was discovered in 1907 by Dr. C. A. Purpus on the Cerro de la Yerba, near San Luis Tultitlanapa, Puebla, South Mexico. Plants were presented to Kew in 1910 by Dr. Britton, New York Botanic Garden, and in 1912 another was acquired from Messrs. Haage and Schmidt, Erfurt. From the latter, which flowered in 1914, our figure has been prepared; two smaller leaves have been added to the plate from a plant presented by Dr. Britton. In England *E. setosa* can only be grown under greenhouse conditions. It flowers regularly and produces offsets freely.

DESCRIPTION.—*Herb*, succulent, stemless. Leaves 100 or more, clustered in a dense rosette 3–4 in. across, and $1\frac{1}{2}$ –3 in. high, sessile, almost flat above, convex beneath, oblanceolate-spathulate, up to 2 in. long, $\frac{3}{4}$ in. wide, $\frac{1}{2}$ in. thick, mucronate-cuspidate, green, polished, white-setose on both faces with spreading hairs. *Scapes* 4–5 in. long, 1–4 to each rosette, from the axils of the upper leaves, sparsely beset with narrow oblong leaves. *Inflorescence* scorpioid, simple or forked; lowermost bracts $\frac{2}{5}$ – $\frac{3}{5}$ in. long, narrowed to the tip and to the base convex on both faces, gradually decreasing upwards; lower pedicels $\frac{2}{5}$ – $1\frac{1}{4}$ in. long. *Sepals* spreading, linear-oblong, green, up to $\frac{2}{5}$ in. long, $\frac{1}{12}$ – $\frac{1}{5}$ in. wide. *Corolla* $\frac{2}{5}$ – $\frac{2}{3}$ long, red towards the base, yellow above, smooth within, finely setose without, split almost to the base into 5 linear-oblong segments. *Stamens* 10, included, white. *Carpels* $\frac{1}{6}$ – $\frac{1}{5}$ in. long, gradually narrowed into green cylindrical styles $\frac{1}{6}$ – $\frac{1}{5}$ in. long.

Tab. 8748.—Fig. 1, petal and stamen; 2, pistil; 8, sketch of an entire plant; A, A, leaves from the Erfurt plant figure; B, B, leaves from a plant received from New York:—all enlarged except 3, which is much reduced.



TAB. 7760.
ECHIDNOPSIS BENTII.

Native of Southern Arabia.

Nat. Ord. ASCLEPIADEÆ.—Tribe CEROPEGIÆ.

Genus ECHIDNOPSIS, *Hook. f.*; (*Benth. & Hook.f. Gen. Plant.* vol. ii. p. 781)

ECHIDNOPSIS, *Bentii*; caulibus fuscis 7–8-costatis costis mamillatis, mamillis uniseriatis folio minuto ovato cuspidato concavo coronatis, floribus apices versus ramorum binis breviter pedicellatis, calycis segmentis deltoideo-ovatis glabrii, corolla vix $\frac{1}{2}$ poll. diam. extus viridi-purpureo maculata intus velutina saturate purpurea, tubo brevi campanulata, limbi patentis lobis late ovatis apiculatis marginibus revolutis, corona exteriori cupulari pentagona truncata purpurea angulis acutis parum productis, interioris lobis erecto-conniventibus breviter clavatis obtusis basi fundo exterioris adnatis.

E. Bentii, *N. E. Brown in Kew Bulletin*, *ined.*

The genus *Echidnopsis* was established in this Magazine, tab. 5930, on a South African species, *E. cereiformis*, of the same habit as *E. Bentii*, but much larger, of a bright green colour, with yellow flowers. Recently other species have been added to the genus, one of which, *E. Dammaniana*, a native of Arabia, is, according to Mr. N. E. Brown, closely allied to *E. Bentii*, differing in the corona.

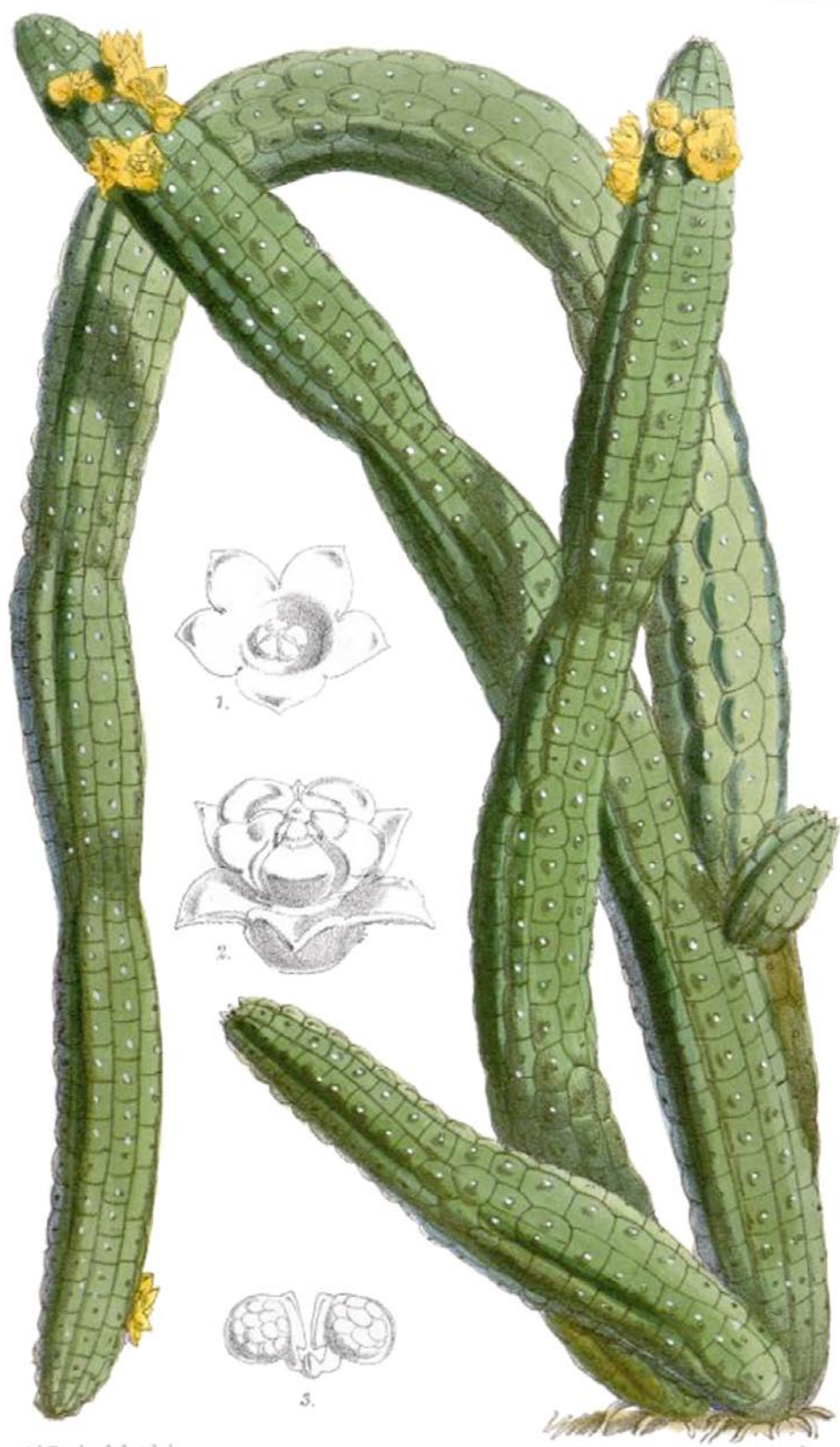
E. Bentii was found in Southern Arabia, the exact locality unknown, by the intrepid traveller whose name it bears. It was sent to Kew by him shortly before his death, together with fragments of other plants collected during his last expedition, probably in the Hadramaut district, to the East of Aden. It flowered in a warm house of the Royal Gardens, Kew, in June, 1899.

Descr.—Whole plant at present five to six inches high, consisting of a short stem, with ascending branches of a pale brown colour. Stem and branches one-half to three-quarters of an inch in diameter, the latter narrowing upwards, seven to eight-ribbed, each rib consisting of a single series of mamillae, each of which is crowned by a minute, ovate, concave, cuspidate leaf, about one-twentieth of an inch long. *Flowers* in pairs towards the tips of the branches, very shortly pedicelled, half an inch in diameter. *Calyx-segments* ovate-lanceolate, acute. Corolla with a

FEBRUARY 1ST, 1901.

short, campanulate tube, and five spreading lobes, externally green, spotted with purple, internally velvety, of a rich, deep, vinous-purple colour; lobes ovate, apiculate, margins revolute. *Outer corona* cupular, acutely five-angled, truncate, purple; inner of five erect and conniving, shortly clavate lobes, which are adnate at the base to the base of the outer corona.—*J. D. H.*

Fig. 1, portion of a mamilla and leaf; 2, back, and 3, front view of flower; 4, corona; 5, pollinia:—*All enlarged.*



W. Fitch, del. et lith.

Vincent Brooks Day & Son, Imp.

TAB. 5930.

ECHIDNOPSIS CEREIFORMIS.

Native of South Africa.

Nat. Ord. ASCLEPIADEÆ.—Tribe STAPELIÆ.

New Genus ECHIDNOPSIS.

GEN. CHAR. *Calyx* 5-fidus, lobis triangularibus acutis valvatis. *Corolla* hemispherico-rotata, 5-loba, lobis ovato-rotundatis acutis. *Corona staminea* 0. *Antheræ* erectæ, incurvæ, late elliptico-ovatæ, apicibus membranaceis horizontalibus. *Pollinia* erecta; masse globosse, lateribus contiguis compressis rectis pellucidis, corpusculo parvo ope stipitis brevis compressi cum margine pellucido continui affixæ. *Fructus* . . .—Herba *perennis*, *carnosa*, *succulenta*, *aphylla*. *Caules elongati, cylindrici, obtusi, cernui v. penduli, hic illic constricti, longitudinaliter 8-sulcati, jugis obtusis transverse constrictis, in areolas quadratas v. hexagonas medio papilla alba notatas divisus*. Flores *parvi, flavi, in sulcis fasciculati, sessiles*.

ECHIDNOPSIS *cereiformis*, Nobis.—Tab. nost. 5930.

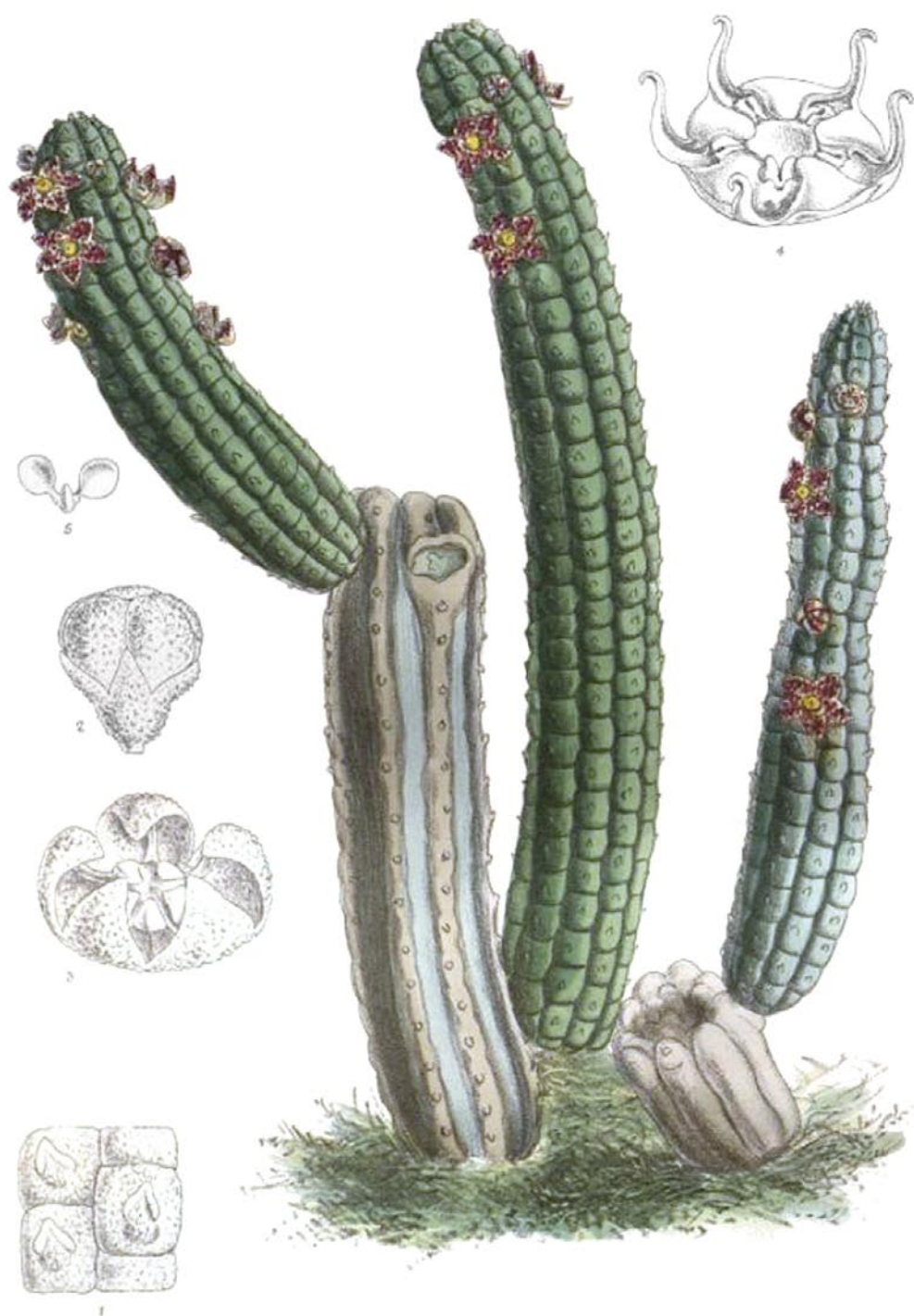
A very curious new genus of plants, belonging to the same tribe of *Asclepiadeæ* as *Stapelia* and its allies, but very different from any of them in the structure of all its parts. It has been for a long time cultivated in the Royal Gardens and is not unknown in other collections under the name of *Stapelia cylindrica*, a genus with which it differs most widely. The native country of this singular plant is altogether unknown, and on reference to Mr. Wilson Saunders, from whose fine collection of succulents we have lately received specimens, he tells me, that though he has cultivated it for many years, he is equally ignorant of its native country.

Treated like a *Cereus* or *Stapelia*, this plant thrives in the warm end of the succulent house at Kew, and flowers from the month of June to October. It would probably thrive well in a hanging pot.

OCTOBER 1ST, 1871.

DESCR. *Roots* fibrous. *Stems* tufted, one to two feet long, suberect or pendulous, one-half to three-quarters of an inch diameter, simple or here and there producing a short side-shoot, cylindric, slightly constricted at irregular distant intervals, eight-grooved and ridged, the ridges divided by shallow transverse depressions into tetragonal or hexagonal prominent areoles, each with a white central papilla (the remains of an undeveloped leaf), of a uniform bright green, firm consistence, and minutely granular surface. *Buds* from the transverse depressions on the ridges. *Flowers* small, produced in the ridges towards the ends of the branches, fascicled, sessile, bright yellow, a quarter to one-third of an inch diameter. *Calyx* tube, hemispheric; lobes 5, triangular, acute, spreading and recurved, valvate. *Corolla* very broadly rotate-campanulate, the short open hemispheric tube expanding into 5 orbicular acute spreading lobes. *Staminal* crown 0; anthers forming a minute depressed five-lobed body in the centre of the flower, connate at their bases and coherent at their membranous tips with the small five-gonal stigma; each broadly elliptic, inflexed from about the middle, smooth. *Pollen* masses erect, globose, yellow; their contiguous surfaces produced into a vertical transparent membrane, that is continuous with the very short cuneate stalk, which again is fastened to the small brown gland.—*J. D. H.*

Fig. 1, Flower; 2, calyx and stamens; 3, pollen-masses:—*all magnified.*



TAB. 7929.

ECHIDNOPSIS SOMALENSIS.

Native of Somaliland.

Nat. Ord. ASCLEPIADACEÆ.—Tribe STAPELIÆ.

Genus ECHIDNOPSIS, Hook. f.; (*Benth. et Hook. f. Gen. Plant.* vol. ii. p. 781.)

ECHIDNOPSIS *somalensis*; frutex nanus (planta depicta semipedalis) carnosus aphyllus, cereiformis, glaber, caulibus ramisque viridibus cylindricis $\frac{1}{2}$ –1 poll. diametro 6–8-sulcatis tessellatis inermibus, floribus subsessilibus solitariis vel 2 vel 3 aggregatis 4–5 lin. diametro atropurpureis luteo-punctatis puberulis vel papillois, calycis lobis ovatis acutis circiter $\frac{1}{2}$ lin. longis, corolla hemisphærico-rotatæ lobis ovatis incurvis vel demum patentibus acutis, coronæ exterioris lobis angustis curvatis apice breviter recurvis intus canaliculatis glabris, coronæ interioris lobis deltoideis obtusis antheris incumbentibus.

E, *somalensis*, N. E. Brown in *Fl. Trop. Afr.* vol. iv. p. 477.

The genus *Echidnopsis* was founded on a cultivated plant of *E. cereiformis*, Hook. f. (*Bot. Mag.* t. 5930), which is very similar to the present species in habit, but it has bright yellow flowers. The stems, too, are longer, but that may be due to age, and more flexible. *E. cereiformis* was originally recorded as a native of South Africa, but it is now known to inhabit Eritrea, Abyssinia and Somaliland; possibly Socotra also. *E. Bentii*, N. E. Brown (*Bot. Mag.* t. 7760), a native of tropical Arabia, has somewhat larger, crimson flowers. About half-a-dozen species are now known from Eastern Tropical Africa, and the genus is also represented in Arabia and the island of Socotra.

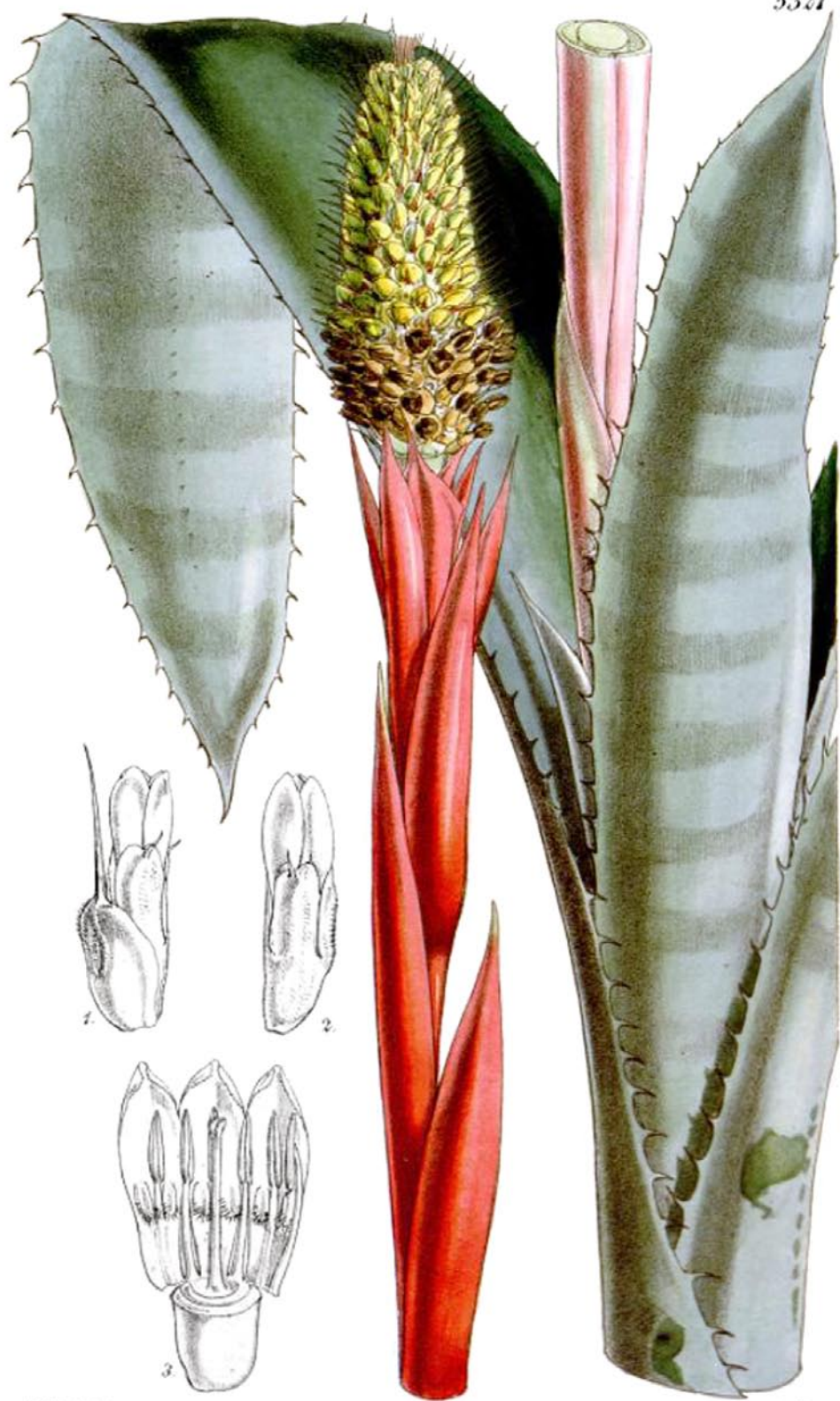
The plant figured was cultivated by Mr. R. I. Lynch, Curator of the Cambridge Botanic Garden. It was also among the plants collected and presented to Kew by Mrs. Lort Philips and Miss Edith Cole; and Cambridge obtained it from the same source.

Descr.—A dwarf, fleshy, leafless shrub, resembling a small, columnar *Cereus*, glabrous, except the flowers; the plant figured, about six inches high. *Stems* and branches green, cylindrical, half to one inch in diameter, six- to eight-furrowed, tessellated, unarmed. *Flowers* nearly sessile, solitary, or two or three in a cluster, four to five

DECEMBER 1ST, 1903.

lines in diameter, dark purple spotted with yellow, minutely papillose or puberulous. *Calyx-lobes* ovate, acute, about half a line long. *Corolla* almost rotate when fully expanded; lobes ovate, at first incurved, afterwards spreading, acute. *Lobes of the outer corona* narrow, sub-erect, incurved, tips shortly recurved. *Lobes of the inner corona* deltoid, obtuse, incumbent on the anthers.—*W. B. H.*

Fig. 1, a portion of a branch; 2, a flower-bud; 3, a partially expanded flower; 4, coronas and genitalia; 5, pollen:—*all enlarged*.



TAB. 5321.

ECHINOSTACHYS PINELIANA.

Banded Echinostachys.

Nat. Ord. BROMELIACEÆ.—HEXANDRIA MONOGYNIA.

Gen. Char. Calyx tubo adnato, nec superius libero, lobis æqualibus, convolutis, mucronatis. Petala medio constricta, ungue lato superne squamulis fimbriatis aucto. Stamina petalis opposita; filamentum undique adnato. Ovarium crassum, carnosum, ovulis 3 ex apice loculorum pendulis.—Herba acaulis, basi surculosa, furfuraceo-canescens; foliis confertis, ligulatis, canaliculatis, basi dilatatis, margine aculeatis; scapo terminali, erecto, sesquipedali; bracteis lanceolatis purpureis ornato; spica cylindrica, densa, bractearum apicibus exsertis subulatis echinata; floribus flavis post anthesin nigrescentibus, amplitudine circiter Æchmæ fulgentis. Brongn. in Planch. Hort. Donat. 25.

ECHINOSTACHYS *Pineliana*, Brongn. l. c.

A singular and striking plant, from the vivid colour of the peduncle and bracts. According to Planchon, in his ‘Hortus Donatensis,’ or Catalogue of Plants cultivated in the houses of Prince A. Demidoff at San Donato, near Florence, it is a native of Rio de Janeiro. The precise habitat of our specimen has been lost, but it was sent to us from the establishments of M. Mackoy, of Liège.

DESCR. Whole *plant* two to three feet high; almost stemless. *Leaves* linear, rigid, concave, spinulose-dentate along the margin, acute and pungent at the apices, uniformly covered on both surfaces with fine appressed silvery furfuraceous down, minutely striated, and very obscurely transversely fasciate with brown. Flowering *stem* a foot high, terete, erect, wholly covered with loosely-sheathing lanceolate acuminate bright-red bracts, three to four inches long, and membranous. *Spike* dense, cylindrical, two inches long, spinulose from the projecting spines of the bracts. *Bracts* oblong, shorter than the *calyx*, blunt, abruptly

JUNE 1ST, 1862.

terminated by a spine that exceeds the flower in length. *Ovary* pubescent, bluntly trigonous. *Sepals* of the same form as the *bracts*, but emarginate at the apex with a very short spine. *Petals* yellow, convoluted, with fringed incurved apices. *Stamens* six, glabrous, alternating with as many thickened hairy glands on the *perianth*. *Style* erect, with a three-lobed *stigma*.

Fig. 1. Flower and bracts. 2. The same, with the bracts removed. 3. Flower, with perianth laid open:—*all magnified*.

N^o 2520.



EUPHORBIA ANACANTHA. SCALY FINGER-
FLOWERED SPURGE.

Class and Order.

DODECANDRIA TRIGYNIA.

Generic Character.

Cor. 4- s. 5-petala, calyci insidens. *Cal.* 1-phyllus, ventricosus. *Caps.* 3-cocca.

Specific Character and Synonym.

EUPHORBIA *anacantha*; inermis imbricata, tuberculis foliolo subrotundo instructis, floribus terminalibus solitariis sessilibus, petalis palmatis. *Hort. Kew. ed. I^{ma}*, 2. p. 136.—*ed. alt.* 3. p. 158. *Willd. Sp. Pl.* 2. p. 888.

EUPHORBIA *tridentata*; inermis ramosa, subtuberculata, calycum laciniis exterius supra concavis coloratis tridentatis. *Lam. Encycl.* 2. p. 416. *Decand. Plantes Grasses* 144. *fide Hort. Kew.*

DACTYLANTHES *anacantha*. *Haworth Syn. Succ.* p. 132.

EUPHORBIIUM *anacanthum squamosum lobis florum tridentatis*. *Isnard. Mem. de l'Acad.* 1720. p. 518. t. 11.

EUPHORBIIUM *erectum aphyllum, ramis rotundis, tuberculis tetragonis*. *Burm. Afr.* 16. t. 7. f 2.

DESCR. This plant has altogether the habit of a STAPELIA, the same kind of fleshy, jointed, tuberculated branches: the *tubercles* are generally four-sided, marked at the point with the remains of a small ovate, deciduous *leaf*. At the extremities of the flowering-branches from three to five oval fleshy leaves are produced, serving as an involucre to the flower, from the centre of which issues the *peduncle*, bearing, according to the usual language, a single flower, with four or five tubular petals, each having a two-lipped *limb*, the under-lip much the longest, and terminated with three subulate

subulate teeth, green on the under side, rugose and beautifully variegated on the upper; the *upper-lip* three lobed, white tinged with purple. From a flat receptacle in the centre of these petals grows the female flower, a single, obsoletely three-cornered *germen*, with a tripartite *style*, and lobular *stigmas*; at first erect, but speedily, as in most of the genus, cernuous; the germen is surrounded by several *stamens*, which rise in succession: *anthers* two-lobed: lobes divaricate. The whole plant when wounded exudes a white milk, which is not acrid.

The above description is given according to the Linnean notions of the parts composing the flowers of an *Euphorbia*; but our friend Mr. ROBERT BROWN has given a much more satisfactory explanation of the organs constituting the flower; which cannot be better described than in his own words, in the appendix to FLINDER'S Voyage, page 556.

"The view I take (says this intelligent botanist) of the structure of *EUPHORBIA* is in one important particular, at least, different from those given by Lamarck, Ventenat, Richard, and Decandolle, though possibly the same as Jussieu has hinted at; so briefly, however, and, I may add, obscurely, that if his supposition be really analogous to what I shall presently offer, he has not been understood by those who profess to follow him in this respect.

"With all the authors above quoted, I regard what Linnaeus has called Calyx and Corolla, in *EUPHORBIA*, as an involucre, containing several male flowers, which surround a single female. By some of these authors the male flowers are described as monandrous, and in this respect also, I agree with them but the body, which all of them describe as a jointed filament, I consider to be made up of two very distinct parts, the portion below the joint being the footstalk of the flower, and that above it, the proper filament: but, as the articulation itself is entirely naked, it follows, that there is no perianthium; the filiform, or lacinated scales, which authors have considered as such, being on this supposition analogous to bractæ: The female flower, in conformity with this supposition, has also its pedunculus on the dilated, and, in a few cases obscurely lobed apex of which the sessile ovarium is placed. If this be a correct view of the structure of *Euphorbia*, it may be expected that the true filament, or upper joint of what has commonly been called filament, should, as in other plants, be produced subsequent to the distinct formation of the anthera, which consequently will be found at first sessile on the lower joint or peduncle, after that has attained nearly its full length, and accordingly, this proves to be the case in such species as I have examined. Additional probability is given to this view, by the difference existing between the surfaces of the two joints in some species. I consider it, however, as absolutely proved, by an unpublished genus of this order, having an involucre nearly similar to that of *Euphorbia*, and like it, enclosing several fasciculi of monandrous male flowers, surrounding a single female, but which, both at the joint of the supposed filament, and at that by which the ovarium is connected with its pedicellus, has an obvious perianthium regularly divided into lobes."

Native of the Cape of Good Hope. Requires to be kept in the greenhouse, or dry-stove. Propagated by cuttings. Flowers in September and October.

Communicated by Messrs. LODDIGES and SONS.



EUPHORBIA CARINATA. KEEL-LEAVED EU-
PHORBIA.

Class and Order.

DODECANDRIA TRIGYNIA.

Generic Character.

Cor. 4- s. 5-petala, calyci insidens. *Cal.* 1-phyllus, ventricosus. *Caps.* 3-cocca.

Specific Character and Synonym.

EUPHORBIA *carinata*; fruticosa, corollis calceoliformibus, foliis ellipticis subtus acutissime carinatis.

CREPIDARIA *carinata*; foliis ovatis acuminatis supra obsolete venosis subtus costa profunde carinata: carina minute tuberculatim. *Haworth Pl. Succ. Suppl. p.* 67.

EUPHORBIA *carinata*. *Donn Hort. Cantab. ed.* 9. *p.* 155.

EUPHORBIA *canaliculata*. *Lodd. Cab.* 727.

The chief account we have found of this rare plant is in HAWORTH'S Supplement to his history of succulent plants. At the time of this publication, in 1819, it does not seem to have flowered in this country, the author having only seen a small plant of it at the Fulham nursery. The flowers are very like those of *E. Tithymaloides*, but the leaves are remarkable for a sharp broad keel along the midrib on the underside, which in the younger leaves is undulated, but in the older ones quite plain, and sharp edged. Mr. HAWORTH, from the slipper-shaped corolla, has raised the section to which this species belongs into a genus, under the name of CREPIDARIA, as has been before done by NECKAR, under the name of PEDILANTHUS.

Native of Trinidad. Requires to be kept in the stove. Communicated by Messrs. WHITLEY, BRAMES, and MILNE, in May last.



EUPHORBIA EPITHYMOIDES. BROAD-LEAVED
SPURGE.

Class and Order.

DODECANDRIA TRIGYNIA.

Generic Character.

Cor. 4- s. 5-petala, calyci insidens. *Cal.* 1-phyllus, ventricosus. *Caps.* 3-cocca.

Specific Character and Synonym.

EUPHORBIA *epithymoides*; umbella quinquefida: trifida: subbifida, involucellis ovatis, foliis obovato-oblongis subtus villosis, capsulis papilloso-hispidis.

EUPHORBIA *epithymoides*; umbella quinquefida: bifida, involucellis ovatis, foliis lanceolatis obtusis subtus villosis. *Sp. Pl.* 656. *Syst. Veg. ed.* 14. p. 452. *Jacq. Flor. Austr.* 4. p. 23. t. 344.

EUPHORBIA *epithymoides*; umbella quinquefida: bifida, involucellis ovatis dentatis, foliis integerrimis lanceolatis obtusis retusis subtus villosis, capsulis papilloso-hispidis. *Willd. Sp. Pl.* 2. p. 909. *Persoon Syn.* 2. p. 16. *Hort. Kew. ed. alt.* 3. p. 165. *Bot. Repos.* 616.

TIPTYMALUS *epithymi* fructu. *Col. Ecphr.* 2. p. 52. t. 51 ?

PEPLIOS altera species. *Baunk. Pin.* 292 ?

JACQUIN observes that the *Involucrum* of this species consists of five leaflets nearly like those of the stem: and says the umbel is generally divided into five rays, which are again divided into three, and these into two. In cultivation there is less constancy in the numbers of the divisions of the umbel. The stem, leaves, and involucella, are covered with a dense soft pubescence scarcely visible to the naked eye, but more evident in the young state. We have never
seen

seen the leaves nearly so broad in proportion to their length as they are represented in the figure in the Botanist's Repository. The plant described and figured by COLUMNA, which is quoted as a synonym by LINNÆUS, is so different from JACQUIN's, that this author expresses a doubt of its being the same, though he speaks confidently of his own, being the same species as that of LINNÆUS.

A hardy perennial. Native of Austria. Flowers in May and June. Cultivated according to DONN in 1805. Communicated by Mr. ANDERSON from the Chelsea garden.



(2624)

EUPHORBIA GLOBOSA. ROUNDISH-JOINTED
SPURGE

Class and Order.

DODECANDRIA TRIGYNIA.

Rectius MONŒCIA MONANDRIA

Generic Character.

Cor. 4- s. 5-petala, calyci insidens. *Cal.* 1-phyllus, ventricosus. *Capsula* tricoeca.

Specific Character and Synonym.

EUPHORBIA *globosa*; inermis, articulata: articulis diversiformibus tuberculatis, floribus terminalibus solitariis, longius pedunculatis, petalis palmatis.

DACTYLANTHES *globosa*; subarticulato-prolifera, articulis variantibus sæpeque sphæroideis. *Haworth in Phil. Mag. v. 62. p. 382.*

For an opportunity of giving a figure of this singularly whimsical growing plant we are indebted to Mr. HOOD, surgeon, who communicated it to our draughtsman in June last, from his very extensive collection of succulent plants, at South Lambeth.

Since our engraving has been prepared for publication, we have found that its mode of growth is subject to considerable variation. The very plant from which our drawing was taken had, six months after, put forth branches both from the lowermost and one of the upper joints, variously shaped and taking different directions; these did not at that time put on the peg-top-like form which all the joints of

of

of our plant had in June, of its appearance at which time our figure is a faithful representation.

We find, also, that in another plant, which came into blossom later, the flower was much larger, quite equaling in size our magnified out-line figure. The peduncle also was much longer and furnished towards the top with several small oval leaves. The segments of the petals were marked towards their base with several glandular cells, and appeared open at the point.

It has considerable affinity with *EUPHORBIA anacantha* (*Bot. Mag. v. 51. n. 2520*), which likewise belongs to Mr. HAWORTH's genus *DACTYLANTHES*.

Native of the Cape of Good Hope. Requires to be protected from frost, and the same treatment as other succulent plants from the Cape. According to Mr. HAWORTH, this species flowered in the royal garden at Kew, in October, 1823.

N^o 1494.



EUPHORBIA IPECACUANHÆ. EMETIC
SPURGE.

Class and Order.

DODECANDRIA TRIGYNIA.

Generic Character.

Cor. 4-f 1-petala, calyci infidens. *Cal.* 1-phyllus, ventricosus.
Capf. 3-cocca.

Specific Character and Synonyms.

EUPHORBIA *Ipecacuanha*; dichotoma, foliis integerrimis lanceolatis, pedunculis axillaribus unifloris folia æquantibus, caule erecto. *Amæn. Acad.* v. 3. p. 116. *Sp. Pl.* 653. *Willd.* 2. p. 900. *Reich.* 2. p. 443. *Mart. Mill. Dict.* n. 44.

EUPHORBIA *Ipecacuanhæ*; perennis, procumbens, pumila, glabra: foliis oppositis sessilibus, obovalibus oblongifve, integris: pedunculis solitariis, 1-floris, elongatis. *Michaux Fl. Bor.-Am.* 2. p. 212.

EUPHORBIA *inermis*; foliis oppositis, pedunculis unifloris solitariis longissimis. *Gron. Virg.* 2. p. 74.

TITHYMALUS flore exiguo viridi, apicibus flavis, antequam folia emittit florens: foliis glabris acuminatis, ad cordis formam accedentibus, nervosis, rigidis: radicibus albis reptatricibus. Nonnullis *Ipecacuanha*. *Clayton Virg.* n. 555.

We are indebted to Messrs. FRASERS, Of Sloane-Square, for the opportunity of giving a figure of this very rare plant, which is not found either in the new edition of AITON's Hortus Kewensis or in DONN's Hortus Cantabrigiensis.

It is a native of Pennsylvania, Virginia, and Carolina, growing in sandy situations.

Formerly two kinds of *Ipecacuanha* were kept in the shops, the white and the brown: the former was supposed by some to have

have been the product of the roots of this plant; but this is very doubtful. The name of Ipecacuanha appears to have been applied to several different plants which have no botanical affinity, merely because they were used to excite vomiting, for which purpose CLAYTON remarks that this species of Spurge was sometimes rashly exhibited in America, especially by the inhabitants of the North. At present we use but one kind of Ipecacuanha, which is certainly not obtained from this or any other species of Euphorbia.

We are informed by MICHAUX, that the leaves of this plant vary much in form, being obovate, oblong, or sometimes quite linear. Often too it is found buried in the sand, growing with crowded items, and appearing to be leafless.

Flowers in June. Is quite hardy. Propagated by dividing its roots. Likes a gravelly dry soil.



EUPHORBIA JACQUINIFLORA. JACQUINIA-
FLOWERED EUPHORBIA, OR SPURGE.

Class and Order.

MONŒCIA MONANDRIA.

(Nat. Ord.—EUPHORBIACEÆ.)

Generic Character.

Involucrum androgynum 4—5-fidum, extus appendiculis glandulosis (petala, *L. nectaria*, *aliorum*). Peripherici: pedicelli incerti numeri, singuli cum singulis staminibus articulati. *Germen* pedicellatum, centrale: *Styli* 3, 2-fidi. *Capsula* 3-cocca. *Spreng.*

Specific Character and Synonym.

EUPHORBIA *jacquiniflora*; dioica? fruticosa, foliis deflexis longe petiolatis lato-lanceolatis, racemis axillaribus paucifloris, involucri lobis 5 obcordatis coccineis basi glandulosis cum squamis rotundatis serratis luteis internis alternantibus.

I regret to know nothing more of the history of this very singular and handsome frutescent EUPHORBIA, than that it was sent from the Berlin Botanic Garden under the appropriate name here retained, and that it flowers in the stove of the Glasgow Garden during the winter months. The fine rich red of the spreading lobes of the involucre contrast admirably with the full and bright green of the foliage.

DESCR. Our plant is a shrub, four to five feet high, the *stem* slender, branching only above, and there only leafy. *Leaves* all pendent, broadly lanceolate, entire, acute, somewhat membranaceous, penninerved, upon long *foot-stalks*. From the axils of the upper leaves arise the short *racemes* of few *flowers* (or rather *involucres*,) each pedicel with a small ovate bractea at the base. *Involucre* with a
short

short, broadly ovate, greenish tube, and a five-cleft, spreading bright red *limb*: the segments obcordate, and having at the mouth five roundish, bifid, serrated, buff-coloured, connivent scales. At the base of each lobe is a transverse honey-bearing gland. In our plant the involucre contains only *male flowers*; each consists of a pedicel with a single *stamen*, subtended by a narrow linear scale. *Anthems* of two globose cells, set apart at the apex of the filament.

Fig. 1. 2. Unexpanded Flowers. 2. Portion of the Involucre, the Scales removed to show the Gland. 3. Scale. 4. Male Flower and accompanying Scale or Bractea:—*magnified*.



EUPHORBIA MELLIFERA. HONEY-BEARING
EUPHORBIA.

Class and Order.

DODECANDRIA TRIGYNIA.

Generic Character.

Cor. 4—feu 5-petala, calyci infidens. *Cal.* 1-phyllus, ventricofus. *Capf.* tricocca.

Specific Character and Synonyms.

EUPHORBIA *mellifera*; foliis fparfis lanceolatis acutis lævibus, pedunculis dichotomis, capfulis muricatis. *Hort. Kew.* 3. p. 493. *Willd. Sp. Pl.* 2. p. 892. *Vent. Malmaif.* 30.

EUPHORBIA *longifolia*. *Lamarck. Dict. n.* 13.

The EUPHORBIA *mellifera* is a native of Madeira, whence it was introduced to the royal garden at Kew in 1784 by Mr. MASSON. It forms a very handsome shrub, growing with a straight stem and branching at the top. The branches are well clothed with leaves, very much resembling those of the Oleander, and bear the flowers in panicles at their extremities. The name was given it from the extraordinary quantity of honey secreted by the petals, the odour of which spreads far around. Except the figure in the Jardin de Malmaison, published at Paris, under the auspices of the Empress Josephine, we know of no representation of this plant. It requires to be carefully protected from frost.

Is propagated by cuttings. Flowers in April. Communicated to us by Mr. BARR, Nurseryman, Ball's-Pond, Islington, a kilful and experienced horticulturist, to whose urbanity we are frequently indebted.



EUPHORBIA PETIOLARIS. LONG-STALKED
SPURGE.

Class and Order.

DODECANDRIA TRIGYNIA.

Generic Character.

Cor. 4-feu 5-petala, calyci infidens. *Cal.* 1-phyllus, ventricosus. *Capf.* tricocca.

Specific Character and Synonyms.

EUPHORBIA *petiolaris*; petiolis verticillatis folio orbiculato longioribus, floribus solitariis, caulefruticoso inermi nodofo.

For this hitherto undescribed species of Euphorbia we are indebted to the Marquis of BLANDFORD, who obligingly communicated the specimen from which our drawing was taken, from his Lordship's collection at White Knights in Berkshire, in May last. It is nearly allied to EUPHORBIA *cotinifolia*, from which it is chiefly distinguished by its slenderer and more woody stem, by the petioles, instead of being simply opposite, growing four or more in a whirl, and being longer in proportion to the small leaves, and by the flowers being solitary, whereas in *cotinifolia* they grow in a dichotomous panicle.

We find a specimen of the same species in the Bankian Herbarium under the name which we have adopted, collected by Mr. RYAN, from whence we learn that it is a native of the West-India Islands.

Should be kept in the dry Rove with the other tropical species of Euphorbia.



EUPHORBIA VARIEGATA. PYE-BALLED
SPURGE.

Class and Order.

DODECANDRIA TRIGYNIA.

Generic Character.

Cor. 4-f. 5-petala, calyci infidens. *Cal.* 1-phyllus, ventricosus. *Capf.* tricocca.

Specific Character.

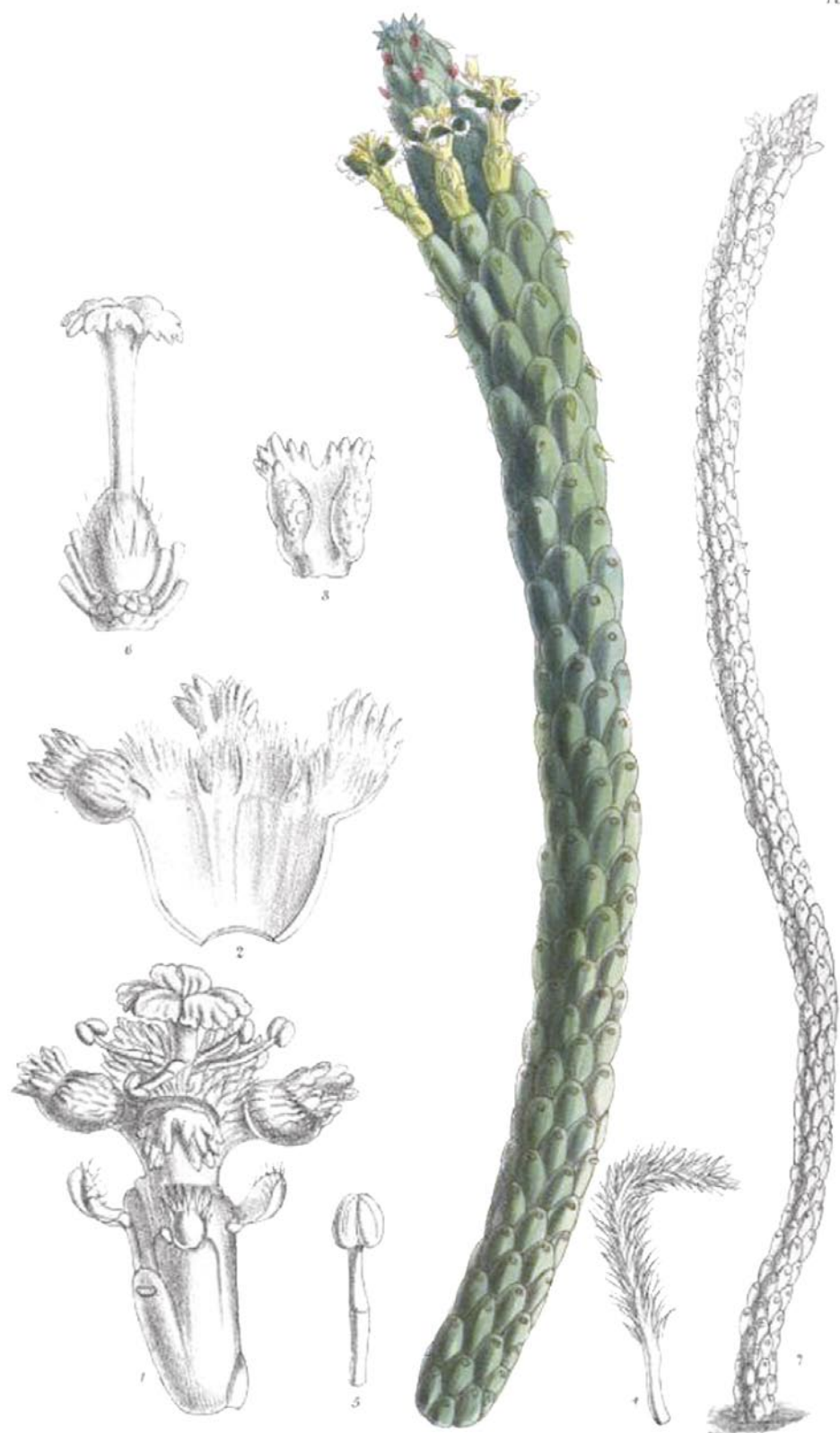
EUPHORBIA *variegata*; (herbacea dichotoma) foliis ovalibus integerrimis undulatis pedunculis axillaribus unifloris, petalis orbiculatis, capfulis glabris, caule hirto.

All the parts of this hitherto unnoticed plant are smooth, except the stem, which is hairy. A few of the lower leaves are plain, but as soon as the flowers begin, though they preserve the same form, take on an appearance of bractes, the margins being furrounded with a band, which, like the petals, is perfectly white, and becomes broader and broader towards the extremity of the branch, till the uppermost leaves are all white except a narrow line along the midrib. The styles are united half-way up, then become bifid and revolute with obtuse stigmas. The filaments also are bifid.

This species approaches to *nudiflora*, but differs essentially in having solitary flowers; besides that, the petals and every part of the fructification are larger, while the plant itself is much smaller.

It is an annual; propagated by seeds only. Native of Upper Louisiana. Introduced by Mr. NUTTAL.

Our drawing was taken last September, at Messrs. LEE and KENNEDY's, HammerSmith.



M.S. del. J.N. Fitch lith.

Vincent Brooks Day & Son Lith.

TAB. 7971.

EUPHORBIA VIPERINA.

Native of South Africa.

Nat. Ord. EUPHORBIACEÆ.—Tribe EUPHORBIÆ.

Genus EUPHORBIA, *Linn.*; (*Benth. et Hook. f. Gen. Plant.* vol. iii. p. 258)

EUPHORBIA (§ Euphorbium) *viperina*; species ex affinitate *E. Caput-Medusæ* et *E. parvimammæ* a quibus foliis minutis squamiformibus differt; etiam *E. tridentatæ* (*E. anacanthæ*, B. M. t. 2520) affinis, ab ea glandulæ lobis linearibus recedit; frutex carnosus, erectus, inermis caule nunc brevi obconice incrassato apice plus minusve stellatim ramoso nunc elongato cylindrico podariis carnosus elongato-hexagonia tecto, foliis ovatis vix 1 lin. longis acutis cito deciduis, pedunculis brevissimis monocephalis, involucri campanulati lobis albis hirtis fimbriatisque, glandulis carnosus lacerato-bilobis, staminibus filamentis plumosis intermixtis, ovario hirsuto stylo glabro stigmate late trilobato lobis crenulatis, fructu ignoto.

E. viperina, A. Berg. in *Monatsschr. für Kakteenk.* vol. xii. (1902), p. 39.

The genus *Euphorbia* is one of the largest in the vegetable kingdom, numbering five to six hundred species, which exhibit the greatest variety in size, habit, duration and foliage. They are spread all over the world, except the colder regions. The section to which *E. viperina* belongs is confined to the Old World, and mainly to Africa; and the species are still very imperfectly known.

The growth of *E. viperina* and allied species is very irregular under different conditions. When propagated from seed the primary stem develops as an obconical body, which bears numerous branches spreading in a stellate manner from near the top. The further development we have not observed. When propagated from cuttings the branching is one-sided, and the main stem elongates considerably—two to three feet.

This species comes very near the one figured in the Magazine (t. 2520), as *E. anacantha*, Ait., especially in the minute, scale-like leaves; but the involucreal glands are very different. *E. globosa*, Sims (B. M. t. 2624) is another species of the same section. *E. meloformis*, Ait., is very much like some of the unarmed species of *Melocactus*.

It is a noteworthy fact that although the genus *Euphor-*
AUGUST 1ST, 1904.

bia is represented by a hundred or more species in Central America, the headquarters of the Cactaceæ, the sections *Diacanthium* and *Euphorbium* of the genus *Euphorbia*, which simulate the Cactaceæ so closely, are not represented in that region.

Descr.—A fleshy, erect or straggling, thornless shrub, one to two feet high. *Stems* and branches usually cylindrical, clothed with spirally arranged, fleshy “podaria” or leaf-bases. *Leaves* minute, ovate, acute, scarcely a twelfth of an inch long, falling soon after development. *Peduncles* short, bearing a single head of flowers. *Involucre* campanulate; lobes white, hairy, fringed; glands fleshy, two-lobed; lobes crenulate. *Stamens* (male flowers) interspersed with plumose filaments. *Ovary* hairy; style glabrous; stigma broadly three-lobed; lobes crenulate. *Seed-vessel* unknown.—*W. B. H.*

Fig. 1, an inflorescence; 2, part of involucre laid open; 3, an involucre gland; 4, one of the feathery filaments which are interspersed with the male flowers; 5, a male flower; 6, a female flower and bases of stalks of male flowers:—*all enlarged*; 7, whole plant, as it was when drawn:—*about half natural size*.



MS. det. J. N. P. (1)

V. B. Brooks, Day & Son, Ltd. in

TAB. 8318.

FOUQUIERIA SPLENDENS.

Northern Mexico and South-Western United States.

FOUQUIERACEAE.

FOUQUIERIA, *H. B. K.; Benth. et Hook. f. Gen. Plant.* vol. i. p. 161; *Engl. & Prantl, Natürl. Pflanzenfam.* vol. iii. p. 298; *Nachtr.* i. p. 251, ii. p. 228.

Fouquieria splendens, *Engelm. in Wisl. Mem. Tour Mex.* p. 98; *Nash in Bull. Torr. Bot. Club*, vol. xxx. p. 456; a speciebus caeteris filamentis supra basin squama munitis distincta.

Frutex spontaneus 2–6 m. altus, glaber, a basi parce ramosus, ramis ad 2·5 cm. crassis fere rectis spinosis sulcatis cortice laevi fusco vel aetate cinerascente obtectis. *Folia* ramorum longorum obovato- vel oblanceolato-oblonga, obtusa vel subacuta, basi in petiolum perbreve attenuata, 2–3 cm. longa, 0·5–1 cm. lata, ramorum abbreviatorum fasciculata, minora; petiolus costaeque pars maxima demum induratus, persistens, spinam 1–2·5 cm. longam patulam sistens. *Inflorescentiae* terninales—raro una alterave axillaris, paniculatae, angustae, 10–15 cm. longae, saepe multiflorae, ramis brevibus plerumque ad fasciculos florum reductis, interdum fere omnibus unifloris; bracteae scariosae, caducae; pedicelli ad 5 mm. longi, saepe breves. *Sepala* late ovata vel suborbicularia, obtusissima, 5–8 mm. longa, pallida, margine hyalino. *Corolla* rubra; tubus rectus, superne sensim paulo ampliatus, 10–16 mm. longus; lobi late ovati vel suborbiculares, obtusi, recurvi vel revoluti, 4–5 mm. longi. *Stamina* 15, filamentis exsertis inaequilongis supra basin paulo dilatatis et intus squamula biloba extra pilosa instructis; antherae 4 mm. longae, connectivo apiculato. *Styli* magis minusve alte coaliti. *Capsula* 10–18 mm. longa, valvis crustactis. *Semina* 7–8 mm. longa, alba, ala mox in pilos soluta basi ad 2 mm. lata circumdata.—O. STAPP.

The genus *Fouquieria*, established in 1823 by Bonpland and Kunth, was five years later treated by the elder De Candolle as the type of a distinct natural family. In taking this step, De Candolle in reality only endorsed a view already suggested by the authors of the genus. Since then the affinities and the systematic status of *Fouquieria* have been carefully studied by several able taxonomists, whose conclusions have not always been in accord. One point which emerges from the discussion as indisputable is that the genus occupies a singularly isolated position. Having regard to this fact, and to the consideration that its relationships are by no means clear, it is more satisfactory to treat *Fouquieria* as the representative of an independent family.

JUNE, 1910.

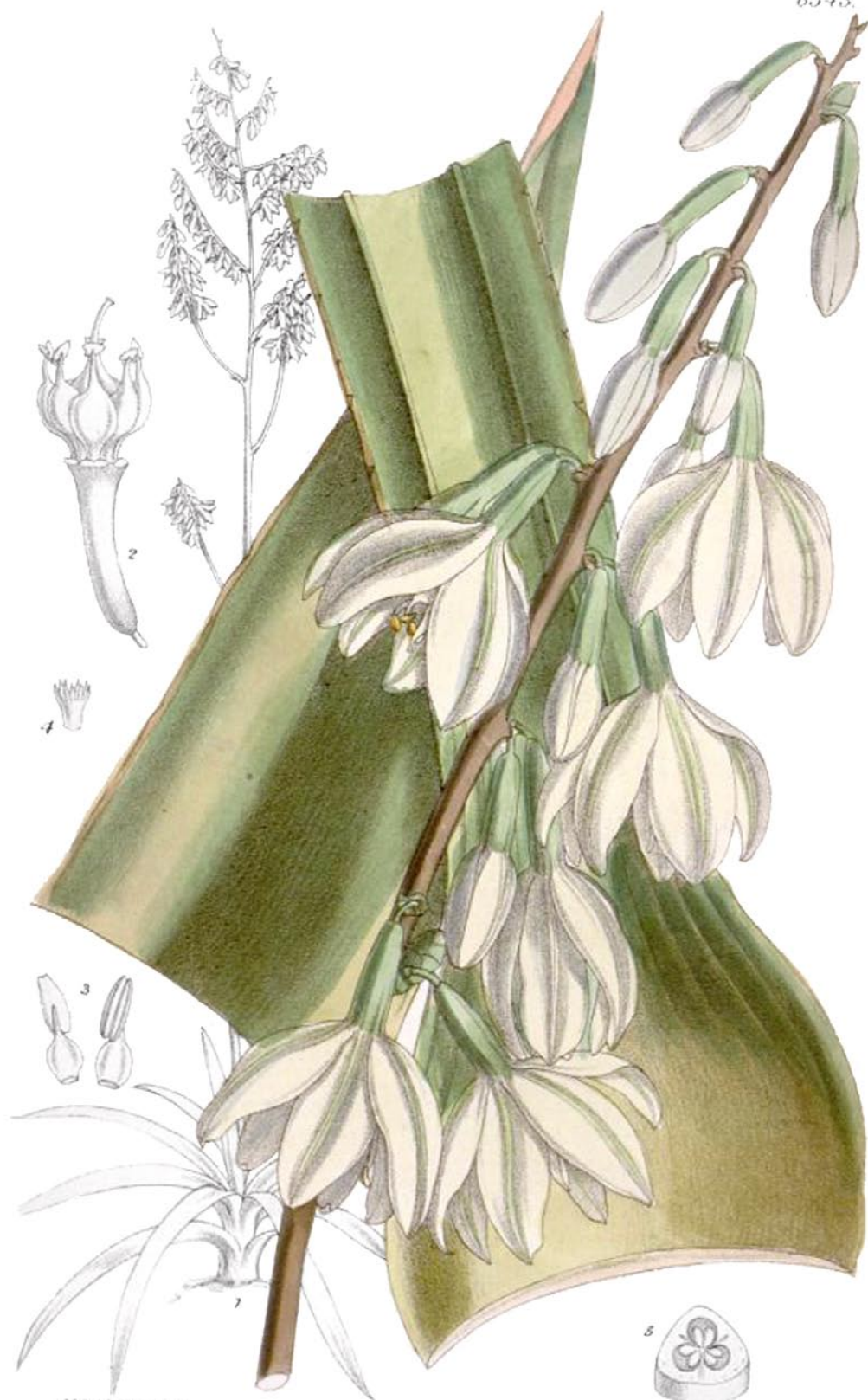
The species here figured, *F. splendens*, extends westwards from N.W. Texas through New Mexico and Arizona to Southern California, thence southwards to Lower California and the Mexican states of Coahuila, Chihuahua and Sonora. In the northern part of this area the plant is variously known as the Coach Whip, the Vine Cactus, Jacob's Staff; its Mexican name is the Ocotello. The bark contains a gum and a resin, and yields, in addition, the substance known as Ocotello Wax. It makes an effective and almost impenetrable hedge, and, according to Dewey, it is sometimes planted closely in line around a rectangle 10 ft. long and 5 across; an opening is left at one end, a covering of brush is laid on top, and the result is a hut such as Mexican families of the poorest class inhabit.

The material from which our figure has been prepared was communicated by Mr. F. W. Moore from a specimen in the Glasnevin collection. That plant is about 3 ft. in height, sparingly branched and strongly armed with stout thorns. The few roots are strong and woody; the small, thin and delicate leaves are deciduous; the indication therefore is that the plant does not require much water or a moist atmosphere. It thrives well and is vigorous at Glasnevin in the Cactus house, in partial shade, with a minimum night temperature of 50°–52° F.; it is grown in an 8-in. pot in loam, mixed with one-fifth finely broken potsherds and old mortar. In the growing season, March to October, it requires a fair amount of water, and has occasionally to be syringed; during the dull winter months it needs very little water, and the atmosphere has to be kept dry so as to provide the marked period of rest which the plant demands.

DESCRIPTION.—*Shrub*, in a wild state 6–20 ft. high, sparingly branched from the base, branches up to 1 in. thick, nearly straight, armed with spines, channelled and covered with smooth, at first tawny, at length ash-grey bark. *Leaves* of the long branches obovate- or oblanceolate-oblong, obtuse or subacute, narrowed at the base to a very short petiole, $\frac{3}{4}$ – $1\frac{1}{4}$ in. long, 3–5 lin. wide; those of the short branchlets fascicled and smaller, their petioles and midribs ultimately hardening into long spreading persistent spines $\frac{1}{3}$ –1 in. long. *Inflorescences* usually terminal, casually one

or more axillary, panicled, narrow, 4–6 in. long, generally many-flowered, on the short branches often reduced to fascicles of flowers, or sometimes almost all to single flowers; bracts scarious, caducous; longest pedicels 2–3 lin. long, often quite short. *Sepals* wide ovate or nearly orbicular, obtuse, $2\frac{1}{2}$ –4 lin. long, pale with hyaline margin. *Corolla* red; tube straight, slightly widened upwards, 5–8 lin. long; lobes wide ovate or nearly orbicular, obtuse, recurved or revolute, $2-2\frac{1}{2}$ lin. long. *Stamens* 15, filaments exserted, unequal, slightly widened above the base and bearing there on the inner aspect a 2-lobed scale which is hirsute on the outer side; anthers 2 lin. long; connective apiculate. *Styles* more or less connate from below upwards. *Capsule* 5–9 lin. long, valves crustaceous. *Seeds* $3\frac{1}{2}$ –4 lin. long, white, surrounded by a wing 1 lin. wide at the base, which soon breaks up into a fringe of hairs.

Fig. 1, calyx and pistil; 2, sepal; 3 and 4, stamens; 5, base of a filament; 6 and 7, anthers; 8 and 9, transverse and vertical sections of an ovary:—*all enlarged*.



M.S. del. J.N. Fitch, lith.



Vincent, Brooks Day & Son, lith.

TAB. 6543.

FOURCROYA CUBENSIS *var. inermis*.

Native of Tropical America.

Nat. Ord. AMARYLLIDACEÆ.—Tribe AGARÆÆ.

Genus FOURCROYA (Vent.), *Schultes*; (*Kunth Enum.* vol. v. p. 839.)

FOURCROYA *cubensis* *var. inermis*; caudice brevi, foliis 20–30 dense rosulatis lanceolatis viridibus 2–3-pedalibus subintegris exterioribus recurvatis, pedunculo foliis duplo longiori, floribus in paniculam laxam rhomboideam ramis erecto-patentibus dispositis, pedicellis brevissimis cernuis apice articulatis, bracteis minutis deltoideis, ovario cylindrico-trigono 8–9 lin. longo, limbi segmentis oblongo-lanceolatis ovario longioribus, staminibus limbo duplo brevioribus, stylo antheras superante stigmatē parvo.

This fine *Fourcroya* came from the collection of Mr. Wilson Saunders, and flowered in the Cactus House at Kew in the winter of 1879–1880. Though at first sight it looks very different, I do not think that it can safely be regarded as more than a variety of the widely-spread tropical American *Fourcroya cubensis* of Haworth, of which, although it is frequently seen in gardens and has been fully known by botanists for the last one hundred and twenty years, no good figure has yet been given. From the ordinary *F. cubensis*, of which a description and the full synonymy will be found in my monograph of the genus in the *Gardeners' Chronicle*, 1879, page 623, our present plant differs by its less rigid leaves and by the total or almost entire suppression of their marginal teeth, which in the type are very large and close, and armed with pungent horny brown spines. The original spelling of the name of the genus is *Furcræa*, but as it was named in honour of the chemist Fourcroy, we have followed the emendation of Schultes, which is now almost universally adopted.

DESCR. *Caudex* very short, about three inches in diameter. *Leaves* twenty or thirty in a dense rosette, lanceolate, bright green and smooth both on back and face, almost or quite

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destitute of teeth down the edges, moderately firm in texture, not pungent at the tip, the outer ones recurving, two and a half or three feet long, three inches broad at the middle, narrowed gradually to an inch and a half above the dilated base. *Peduncle* about five feet long, sheathed by several much-reduced ascending leaves. *Panicle* lax, rhomboid, about five feet long by one and a half or two feet broad, its erecto-patent branches a foot or a foot and a half long, with only very small bracts at the base; pedicels very short, drooping, the upper ones of the branch solitary, the lower clustered; bracts minute, deltoid, membranous. *Ovary* green, cylindrical-trigonous, about three-quarters of an inch long; segments oblong-lanceolate, spreading, milk-white, an inch long, a third of an inch broad. *Stamens* half as long as the perianth-segments; filament with a struma an eighth of an inch thick, narrowed into a subulate tip below the small oblong anther. *Style* finally twice as long as the stamens; stigma minute, capitate.—*J. G. Baker.*

Fig. 1, the whole plant, much reduced; 2, a flower, with the segments of the limb taken away; 3, two stamens; 4, horizontal section of the ovary; 5, tip of style and stigma:—*all more or less enlarged.*



TAB. 5163.

FOURCROYA FLAVO-VIRIDIS.

Yellow-green Fourcroya.

Nat. Ord. AMARYLLIDACEÆ.—HEXANDRIA MONOGYNIA.

Gen. Char. *Perigonium* corollinum, superum, deciduum, hexaphyllo-partitum; foliolis equalibus, patentiusculis. *Stamina* 6, epigyna; *filamenta* basi cuneato-dilatata, æstivatione erecta, sub anthesi inclusa; *antheræ* ovate, medio dorso affine, erectæ. *Ovarium* inferum, triloculare. *Ovula* plurima, in loculorum angulo centrali biseriata, horizontalia. *Stylus* triqueter, basi strumoso-inersatus, subexsertus, cavus, apice pervius. *Stigma* obtusum, fimbriatum. *Capsula* coriacea, trilocularis, loculicido-trivalvis. *Semina* plurima, plano-compressa.—*Herbæ in America calidiore cis æquatorm indigenæ, longævæ, semel florentes; caudice interdum giganteo, apice folioso; scapo terminali, paniculatim ramoso, multifloro. Endl.*

FOURCROYA *flavo-viridis*; acaulis, foliis pallide flavo-viridibus subsesquipetalibus bipetalibusve lanceolatis carnosius acuminatis subtortuosis spinosis, spinulis mediocribus falcatis, scapo subbiorgyali apice laxè racemoso-paniculato, floribus subaggregatis nutantibus 3 uncias longis, perianthio infundibuliformi-hypocrateriformi, tubo viridi, limbo flavescente 4 uncias lato, staminibus limbi laciniis lanceolatis 3 interioribus latioribus brevioribus, filamentis infra medium valde dilatatis, stylo staminibus brevioribus basi erecto-trilobis.

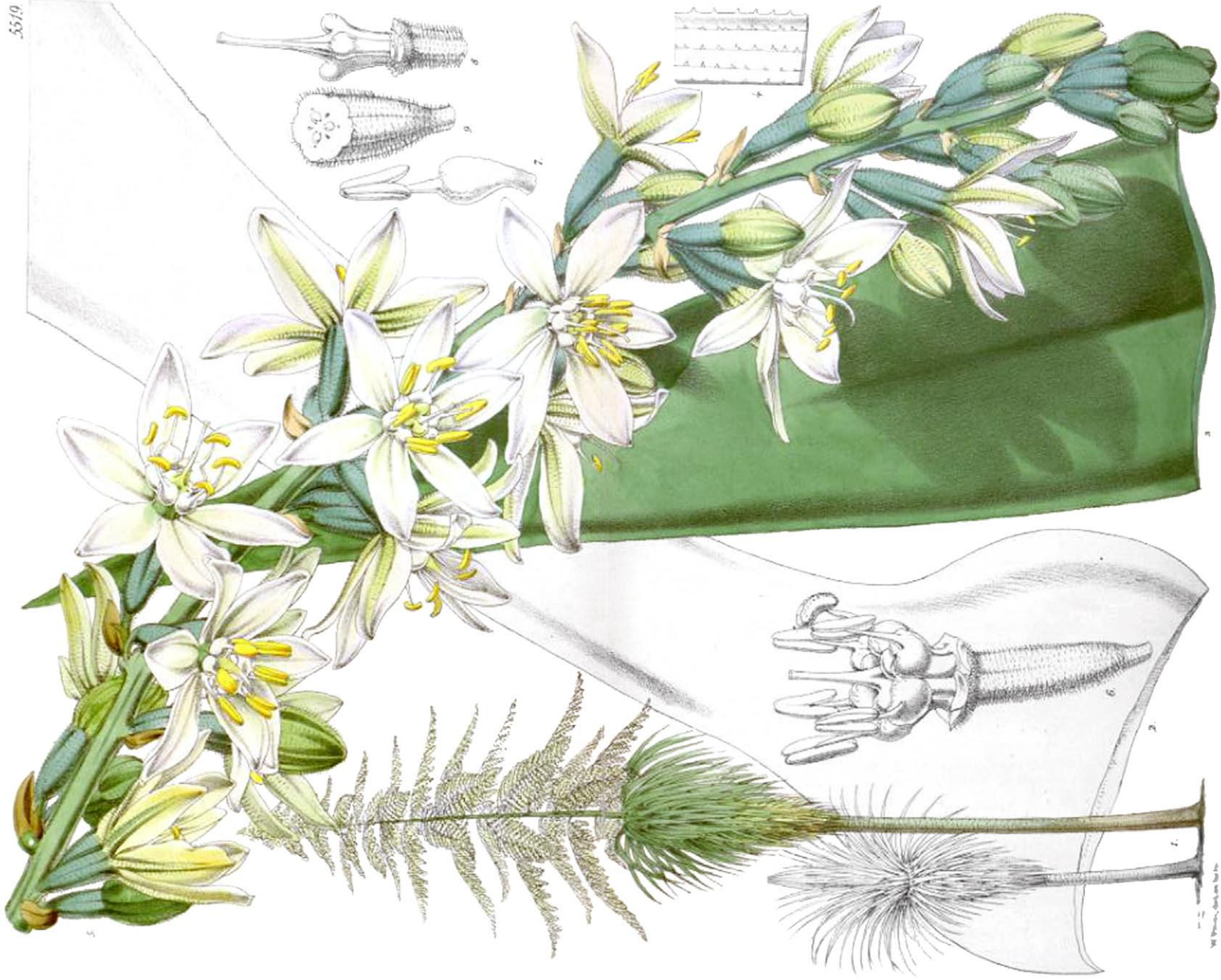
The brief account we have of *Fourcroya tuberosa* might be considered sufficiently to correspond with our present plant to justify us in attaching the name to it, were it not for the absence of a swollen base or rhizome from which the roots spring. We have plants that have not yet flowered, which in that particular better correspond with *F. tuberosa*, and I am bound to consider a new species, which Mr. Repper sent, twelve or fourteen years ago, along with *Cereus senilis* and other Mexican succulents, from Real del Monte. It may be considered a *Fourcroya gigantea* in miniature; the flowers however being quite as large and of the same structure as *F. gigantea*, already given in Bot. Mag., Tab. 2250.

DESCR. The *root* is coarsely fibrous, without stem or caudex. *Leaves* all radical, more or less spreading, and some-

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what tortuose, about two feet long, lanceolate, pungently acuminate, pale-green, very smooth and even, spinulose at the margin: the *spines* or *teeth* falcate, sharp; superior ones pointing towards the apex, inferior ones the reverse. *Scape* twelve to fourteen feet high, naked below but bracteated above, forming a long lax racemose *panicle*; *pedicels* aggregated on short bracteated *peduncles*, drooping; bracteas ovato-lanceolate, long-acuminate. *Perianth* pale-yellowish-green; the *tube* incorporated with the obtusely triangular *ovary*. The spread of the limb is nearly four inches; three outer *sepals* narrower, three inner subcoroloid and a little waved. *Filaments*, as in the genus, singularly dilated below the middle, and the style has at its base three large erect lobes, characteristic of the genus *Fourcroya*.

Fig. 1. Apex of a leaf,—*nat. size*. 2. Stamens. 3. Pistil. 4. Transverse section of ovary:—*magnified*.



FOURCROYA LONGÆVA.

Long-enduring Fourcroya.

Nat. Ord. AMARYLLIDACEÆ.—HEXANDRIA MONOGYNIA.

Gen. Char. *Perigonium* corollinum, superum, deciduum, hexaphyllo-partitum, foliolis equalibus patentiusculis. *Stamina* 6, epigyna; *filamenta* basi cuneato-dilatata, æstivatione erecta, sub anthesi inclusa; antheræ ovatæ, medio dorso affixæ, erectæ. *Ovarium* inferum, triloculare. *Ovula* plurima, in loculorum angulo centrali biseriata, horizontalia. *Stylus* triqueter, basi strumoso-incrassatus, subexsertus, cavus, apice pervius; *stigma* obtusum, fimbriatum. *Capsula* coriacea, trilocularis, loculicido-trivalvis. *Semina* plurima, plano-compressa.—*Herbæ in America calidiore cis æquatorem indigenæ, longævæ, semel florentes; caudice interdum giganteo, apice folioso; scapo terminali paniculatim ramoso, multifloro. Endl.*

FOURCROYA *longæva*; elata, arborescens, foliis e basi dilatata angusto-ensiformibus acuminatis inermibus, margine dorsoque calloso scabriusculis, scapo longissimo erecto, per totam fere longitudinem composito-racemoso, floribus extus glanduloso-pilosis.

FOURCROYA *longæva*. *Karw. et Zucc. in Nov. Act. Bonn. v. 16. pt. 2. p. 666. t. 48. Herb. Amaryll. p. 126. t. 33. f. 20–25.*

At Tab. 2250 of the ‘Botanical Magazine’ has been given a figure of the noble *Fourcroya gigantea* of Ventenat, and at our Tab. 5163 another species of *Fourcroya*, *F. flavo-viridis*, Hook.; both of these, however, are stemless plants. We have now the great satisfaction of representing a far more striking species even than the *F. gigantea*, namely, the *F. longeva* of Karwinski and Zuccarini, which flowered in the conservatory of the Regent’s Park Royal Botanic Garden, in the summer of last year, under the skilful management of Mr. Robinson,—for the first time, I have every reason to suppose, in Europe. The species was first made known to science by Baron Karwinski, distinguished by his botanical travels in Mexico, and it was figured and described by him and Zuccarini in the volume of the ‘Nova Acta’ above
JULY 1ST, 1863.

quoted. It is this, too, that is so admirably illustrated by Mr. Bateman by an interesting vignette-landscape in his splendid 'Orchidaceæ of Mexico and Guatemala' (under t. 17), with the quotation:—

“Unde nil majus generatur ipso,
Nec viget quidquam simile, aut secundum;”

and with the further remark:—“The stately plant here represented is *Fourcroya longæva*, one of the most marvellous productions of the vegetable world. It belongs to the family of *Amaryllidaceæ*, and has the habit of a gigantic *Yucca*, its stem being frequently fifty feet high, and its flower-spike forty more! It was originally discovered on Mount Tanga, in Oaxaca, at an elevation of ten thousand feet above the level of the sea. Mr. Skinner has also met with it on the high mountain-ridges in the interior of Guatemala. Plants of the species exist in our nurseries, but, contrary to expectation, it seems to suffer severely from the cold and changes of our climate.”

With us and in the Regent's Park Garden, the temperature of a common greenhouse is sufficient for it; but the largest of our plants in cultivation are of course but pigmies in comparison with the height on its native mountains. At the time our drawing was made the specimen was past perfection (it has died after flowering), and we have thought it best to take our representation of the entire plants (on the extremely reduced scale) from Karwinski and Zuccarini's figures of the native plants. The flowers and analysis are from the recent specimen kindly communicated by Mr. Sowerby.

DESCR. The *plant* which produced the flowers here represented was about fifteen feet high, including the flowering panicle, but we learn from travellers in Mexico and Guatemala that the stem alone there attains a height of forty and fifty feet, perfectly erect, straight, cylindrical, scarred transversely, terminated with a magnificent crown of *leaves* two to three feet long, coriaceous-carnose, from a very broad base, narrow, ensiform, very acuminate, with more the habit of those of some *Yucca* than of *Fourcroya* or *Agave*; the surface above is quite smooth, beneath it is finely striated, and the striæ and margin are rough with minute callose sharp points. These *leaves* are densely crowded, upper ones suberect, the lower ones are closely reflexed upon the stem. *Scape* terminal, for its whole length (said sometimes to equal forty feet!) forming a pyramidal much-branched *panicle*. *Flowers* bracteated at the base. *Bracteas* small, ovate, acuminate, about the length of the very short *pedicel*. *Tube* of the perianth (inferior ovary) three-quarters of an inch long, subcylindrical, glandulose-pubescent; the *limb* spreading, two to two and a half

inches across, white with a greenish tinge, yellow-green externally, pubescent towards the base. *Stamens* six, large, erect. *Filaments* subulate, singularly strumose above the thickened base. *Anthers* sagittate, orange. *Style* below the middle, with three globose, large, erect *tubercles*, which alternate with each pair of stamens. *Ovary* three-celled, obscurely three- or six-furrowed.

Fig. 1. Figures of two (one flowering) native plants, from Karwinski,—*on a very reduced scale*. 2, 3. Base and apex of a leaf,—*nat. size*. 4. Small portion of the back of a leaf,—*magnified*. 5. Branch of a panicle of flowers,—*nat. size*. 6. Flower, from which the segments of the perianth have been removed. 7. Stamens. 8. Style. 9. Transverse section of the stigma,—*more or less magnified*.



W. P. de la et al.

TAB. 6148.

FOURCROYA SELLOA.

Native of Guatemala.

Nat. Ord. AMARYLLIDÆ.—Tribe AGAVÆÆ.

Genus FOURCROYA, Vent.; (*Endl. Gen. Plant.*, p. 181).

FOURCROYA *Selloa*; caudice brevi robusto, foliis perplurimis dense confertis undique patentibus strictis 3-pedalibus carnosio-fibrosis anguste ensiformi-lanceolatis supra basim angustatis attenuato-acuminatis margine remote spinosis, spinis incurvis mucroneque terminali tenui deciduo castaneis, utrinque supra basim subcarinatis, subtus asperis secus costam basim versus remote spinosis, scapo 15–20 pedali stricto remote bracteato, paniculæ ample laxæ ramis erecto-patientibus, bracteis parvis ovato-lanceolatis viridibus, floribus pendulis 2–2¹/₂ poll. diam. breviter pedicellatis, ovario parvo anguste oblongo, perianthii foliolis oblongis obtusis dorso fere albis intus viridibus late albo-marginatis, filamentis triangulari-subulatis perianthio multoties brevioribus, antheris parvis flavis.

F. Selloa, *K. Koch in Wochenschrift*, 8 jahrg., p. 22; *Jacobi in Hamburg Garten Zeit.*, vol. xxii. p. 408.

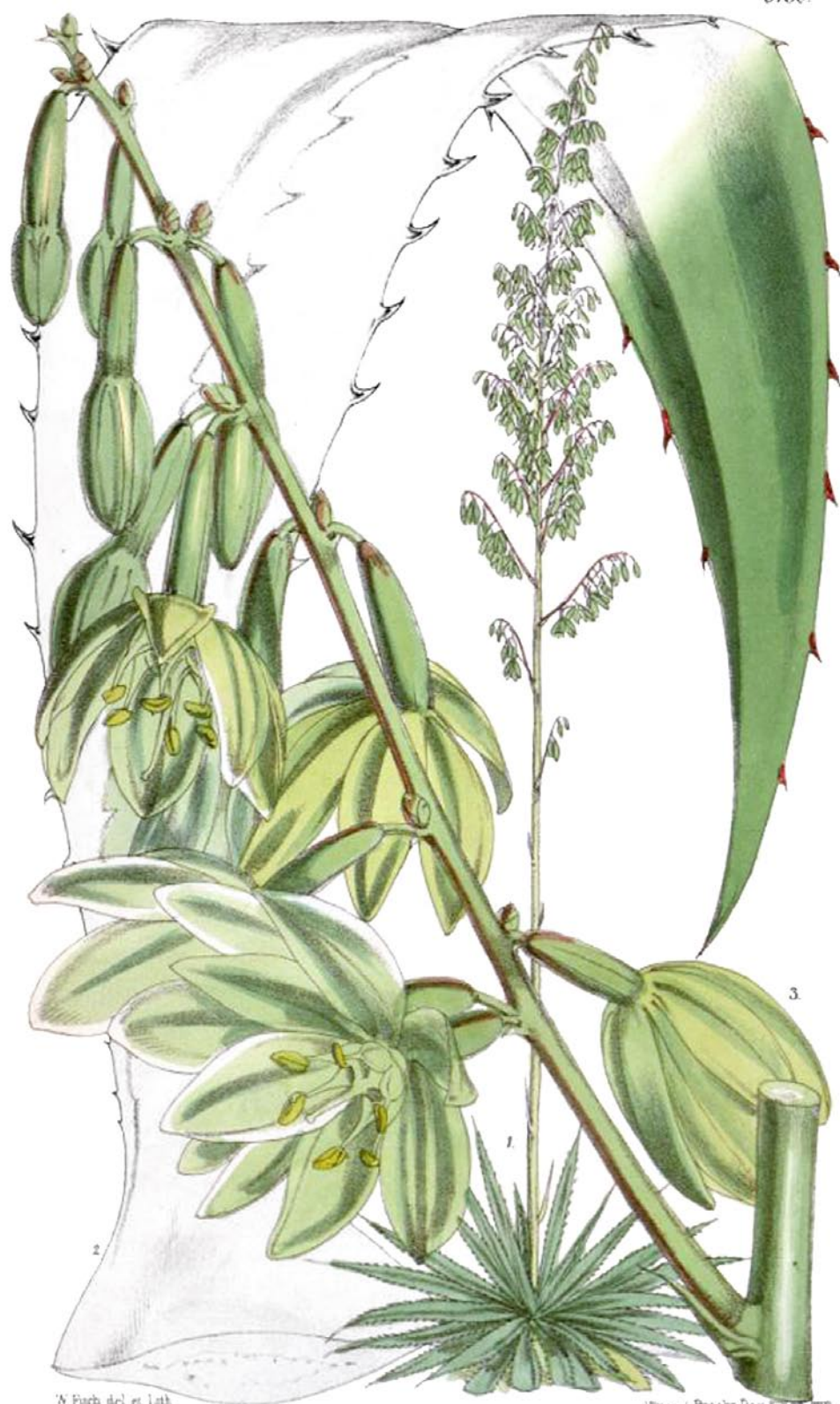
The plant here figured was named as above by General Jacobi on his visit to Kew some years ago (in 1865, I think). It is described in his monograph of the genus published in Otto's *Gartenflora* in 1866; as also previously by Karl Koch, but from foliage only. I am not aware that it has flowered anywhere but at Kew, where two individuals in the spring of last year sent up flowering scapes, which pushing rapidly upwards, were allowed to protrude through the roof of the Succulent House, and expanded in magnificent panicles in September. They continued flowering till November, and formed bulbils in the branches of the panicle as well as flowers. At the same time, three other fine plants of the same class flowered in the same house, and required exit through the roof—namely, *Agave americana* and two specimens of *Dasylium acrotrichum*.

F. Selloa is a native of Guatemala, and has long been
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cultivated at Kew, where it was received from the Continental gardens.

DESCR. Trunk one foot high, clothed with brown remains of old leaves. *Leaves* forming a nearly-rounded coma six feet in diameter, spreading on all sides, straight, rigid, bright green, narrowly lanceolate-ensiform, contracted above the base, gradually narrowed into a long, pungent, deciduous, chestnut-brown spine; margin with remote, incurved, horny, chestnut spines, a quarter of an inch long; upper surface concave and granular, convex and almost keeled at the contracted part; lower surface rough, with close set points, convex, raised along the middle line towards the base and there armed with a few spines. *Scape* fifteen to twenty feet high, slender, strict, green, with a few small sub-erect lanceolate-subulate bracts. *Panicle* four to six feet high, spreading, laxly branched; branches slender, erectopatent, lax-flowered. *Bracts* at the bases of branches small, green. *Flowers* two inches in diameter, rather crowded on short branchlets, drooping, very shortly pedicelled; bracteoles small, green, subulate. *Ovary* oblong, half an inch long. *Perianth-segments* equal, elliptic-oblong, rounded at the apex, spreading and incurved, almost white externally; internally green, with a broad white margin. *Stamens* about one-third the length of the perianth. *Filaments* fleshy, triangular-subulate, greenish white; anthers small, yellow. *Style* subulate.

Fig. 1, Whole plant, reduced; 2, leaf, *reduced*; 3, portion of leaf; and 4, of panicle:—*of the natural size*.



TAB. 6160.

FOURCROYA UNDULATA.

Native of Mexico.

Nat. Ord. AMARYLLIDÆ.—Tribe AGAVEÆ.

Genus FOURCROYA, *Vent.*;—(*Endl. Gen. Plant.*, p. 181).

FOURCROYA *undulata*; caule brevissimo, foliis paucis sesquipedalibus diametro bipollicaribus ensiformibus patentibus rigidis longe acuminatis, apicibus spinulisque marginalibus subremotis castaneis supra basim dilatatam contractis, superne plano-concavis, subtus scabris obscure carinatis, marginibus subundulatis, utrinque opacis olivaceo-viridibus non glaucis, spinulis e basi deltoidea incurvis, scapo gracili stricto una cum panicula 10-pedali, bracteis paucis subulatis, panicula elongata stricta pubescente, ramis brevibus strictis erecto-patentibus, floribus 2-nis pendulis viridibus, bracteolis minutis, pedicellis brevibus, ovario pubescente elongato-subcylindraceo, perianthii foliolis anguste oblongis obtusis, stylo brevi subulato.

FOURCROYA *undulata*, *Jacobi Nacchträge Versuch. Systemat. Ordnung Agaveæ*, p. 55.

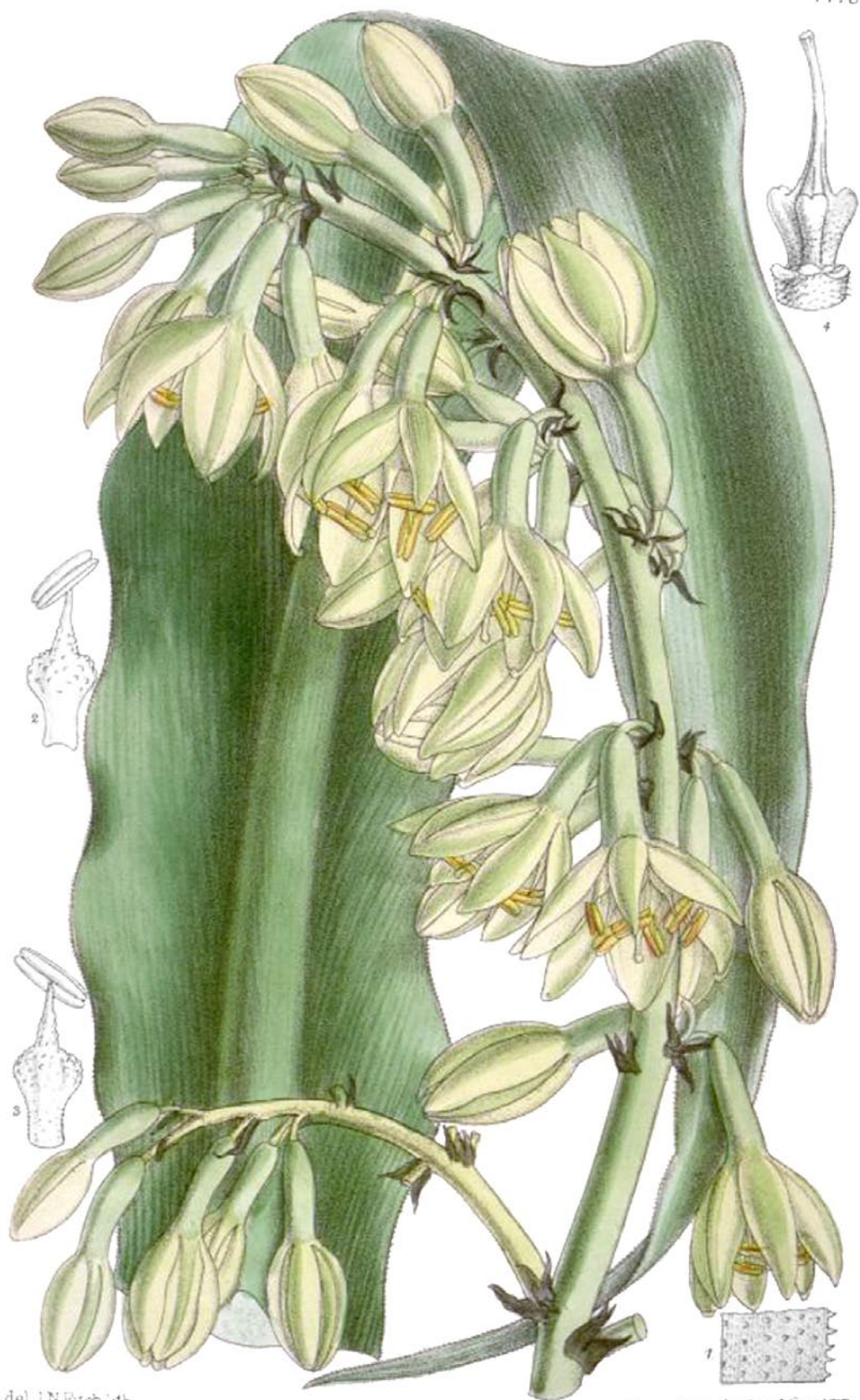
Though in many respects so similar to *F. Selloa*, figured in last month's number of this work, this is a remarkably different species, much smaller in all its parts, apparently never forming a stem, and with the leaves broader for their length, and more or less undulated at the margin; its spines also are more hooked. It is a native of the provinces of Chiapas and Tabasco in Mexico, where it was found by the traveller Giesbrecht, who sent it to Verschaffelt's splendid establishment in Ghent (now incorporated with the no less celebrated Brussels' one of Linden). The Kew specimen, which is here figured, flowered in the Royal Gardens in November, 1874, rather later than the other species, than which it may want a warmer climate, as that of Chiapas and Tabasco is described as hot, damp, and its hills as clothed with a tropical forest. It was received from the rich collection of W. W. Sanders, Esq., F.R.S.

DESCR. *Stem* none, or very short indeed. *Leaves* forming a flat crown three feet in diameter, not very numerous, strict, spreading, one and a half feet long by two inches in diameter at the broadest part, and one-eighth of an inch

APRIL 1ST, 1875.

thick, ensiform, long acuminate, terminated by a pungent chestnut-brown spine, obscurely keeled at the back, which is scabrid; margin subundulate with incurved chestnut-coloured stout spines, olive-green on both surfaces, but not glaucous. *Scape* with the panicle ten feet high, green, with few subulate bracts. *Panicle* elongate, slender, narrow, erect, pubescent; branches a foot long, more erect than spreading, simple, strict. *Flowers* all drooping, usually in pairs; pedicels very short, and bracts minute. *Ovary* cylindric, pubescent, nearly an inch long, green. *Perianth* two to two and a half inches in diameter, pale green; segments narrow-oblong, obtuse, obtusely keeled down the centre. *Filaments* subulate, with broadly deltoid bases; anthers short, yellow. *Style* subulate.—*J. D. H.*

Fig. 1, Entire plant, *reduced* ; 2, leaf; 3, branch of panicle and flowers:—*both of the natural size.*



TAB. 7170.

FURCRÆA BEDINGHAISII.

Native of Mexico.

Nat. Ord. AMARYLLIDEÆ.—Tribe AGAVEÆ.

Genus FURCRÆA, *Vent.*; (*Benth. et Hook. f. Gen. Pl.* vol. iii. p. 739.)

FURCRÆA *Bedinghausii*; caulescens, foliis dense rosulatis ensiformibus 3–4-pedalibus recurvatis facie lævibus dorso scabris valde glaucescentibus marginibus denticulatis, floribus in paniculam amplam ramis elongatis pendulis compositis dispositis, pedicellis brevibus aggregatis apice articulatis, bracteis parvis scariosis, ovario cylindrico, perianthio albo segmentis interioribus oblongis exterioribus lineari-oblongis dorso viridi tinctis, staminibus perianthio brevioribus filamentis valde strumosis, pistillo staminibus æquilongo.

F. *Bedinghausii*, K. Koch. *Wochen.* 1863, 233; *E. Morren in Belg. Hort.* 1863, 327, with figure; *Baker in Gard. Chron.* tenant 1879, vol. i. p. 656; *Handb. Amaryll.* p. 203.

F. *Roezlii*, André in *Rev. Hort.* 1887, p. 353, fig. 1.

Roezlia bulbifera, *Roezl. in Belg. Hort.* 1883, p. 133 (name only).

This is a most distinct and interesting species of *Furcraea*, with the habit of a dwarf form of *F. longæva*, but with leaves resembling those of a *Beschorneria* in their texture and denticulate margin. It was discovered by Roetzl in the year 1860 on Mount Acasca, which is situated seven or eight German miles south of the city of Mexico, and was introduced by him into cultivation. It was first flowered in 1863 by M. Bedinghaus of Mons, in Belgium, after whom it was named by Dr. Karl Koch. It is now widely spread in gardens, and has borne a variety of names in garden catalogues, such as *Yucca Parmentieri*, *Y. argyrophylla*, *Y. Toneliana*, and *Roezlia regia*. It has been flowered more than once in the open air in Scilly by Mr. Dorrien Smith, and in various places in England, always under cover so far as I know. Our drawing was made from a plant flowered in the summer of 1890 by E. H. Woodhall, Esq., of St. Nicholas House, Scarborough.

DESCR. *Trunk* reaching sometimes a length of five or six feet below the rosette and a diameter of six or nine inches.

APRIL 1ST, 1891.

Leaves in a dense rosette, ensiform, three or four feet long, three or four inches broad at the middle, narrowed gradually to the point and to an inch above the dilated base, recurved, nearly smooth, and but little glaucous on the upper surface, very glaucous and scabrous on the under surface, with minutely denticulate edges. *Peduncle* stiffly erect, about as long as the leaves. *Inflorescence* a lax panicle ten or twelve feet long, with many long pendulous compound branches; pedicels short, aggregated, articulated at the apex; bracts small, brown, membranous. *Ovary* cylindrical, under an inch long. Expanded *perianth* two inches in diameter, white; inner segments oblong; outer linear-oblong, tinted with green outside. *Stamens* shorter than the perianth; filaments very strumose in the lower half; anthers versatile. *Pistil* as long as the stamens; lower part of the style strumose and deeply trisulcate; upper part subulate.—*J. G. Baker.*

Fig. 1, Portion of leaf, showing the under surface and margin; 2, a single stamen; 3, another stamen; 4, style and stigma:—*all enlarged.*



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TAB. 8461.

FURCRAEA ELEGANS.

Mexico.

AMARYLLIDACEÆ. Tribe AGAVEÆ.

FURCRAEA, *Vent.*; *Benth. et Hook. f. Gen. Plant.* vol. iii. p. 739.

Furcraea elegans, *Tod. Hort. Bot. Panorm.* p. 13, t. 4; *Baker, Handb. Amaryll.* p. 201; *J. R. Drummond in Rep. Missouri Bot. Gard.* 1907, pp. 45, 66, 74, t. 2; species ex affinitate *F. flavoviridis*, *Hook.*, a qua foliis crassioribus spinis validioribus staminorumque filamentis brevius subulatis differt.

Suffrutex acaulis. *Folia* 40–50 rosulatum disposita, primum erecto-patula demum patentia vel recurva, 2–2·35 m. longa, 10 cm. lata, longe lanceolata, basi pagina superiore tumida marginibus compressis, supra basin vix contracta, convexa, deinde gradatim plana, tertia suprema canaliculata apice spina recta 1·5 cm. longa instructa, marginibus spinis antice curvatis subtriangularibus acuminatis armata, supra obscure viridia purpureo-marginata, subtus scabra. *Inflorescentia* 7·75 m. alta, gemmifera; pedunculus basi circiter 15 cm. diametro, fere ad basin ramiger; rami ad 1·7 m. longi, multiflori; bracteae lanceolatae; pedicelli 1 cm. longi, nutantes *Perianthium* glabrum; tubus 2·2 cm. longus, extra demum brunneus; segmenta 3 cm. longa, ovata, intus pallide viridia, exteriora interioribus paullo angustiora, extra purpurea demum brunnescentia. *Filamenta* 1 cm. longa, fusiformia, apice breviter subulata; antherae oblongae, basi breviter cordatae. *Stylus* staminibus paullo longior, parte inferiore alte canaliculata, parte superiore cylindrica; stigma breviter trilobum.—*F. Ghiesbreghtii* et *F. pugioformis*, *Hort. Vershaffelt. ex Tod. Hort. Bot. Panorm.* p. 13.—C. H. WRIGHT.

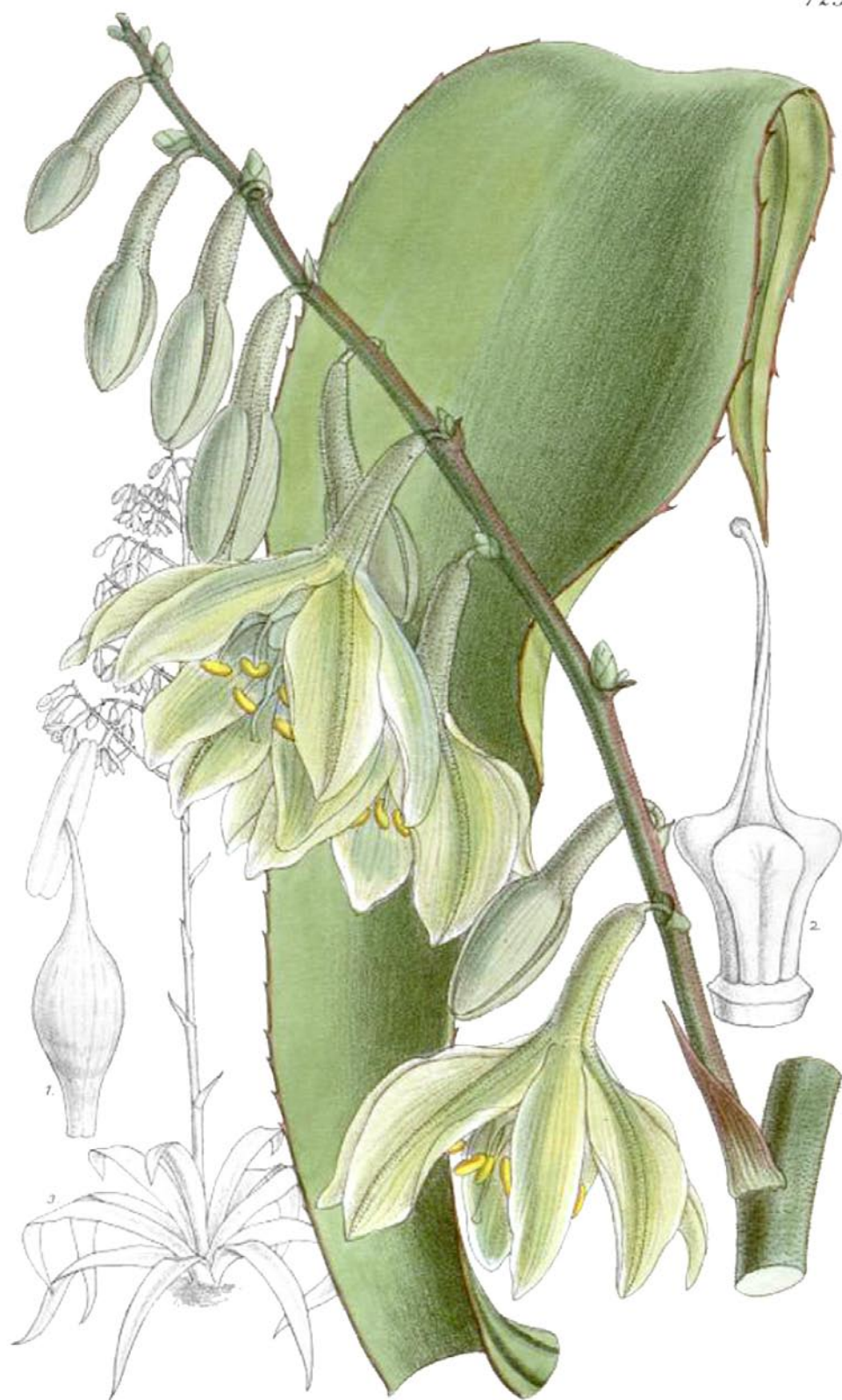
The fine *Furcraea* which forms the subject of our illustration is a native of Mexico, which has been known in European collections for many years. It was first described by the late Professor Todaro from a plant which flowered in the Botanic Garden at Palermo in 1875, and is distinguished from all the other species which have a very short stem or are quite stemless, by the size of its leaves which at times attain a length of nearly eight feet. Its nearest ally in the genus is *F. flavoviridis*, *Hook.*, figured at t. 5163 of this work, which however has thinner leaves with more slender marginal spines and has the upper subulate portion of the filaments as long as the lower swollen part. Another ally is *F. undulata*, *Jacobi*, figured at t. 6160 of the Botanical Magazine; this latter, however, is a much smaller plant, with the leaves conspicuously contracted just above the base, while the inflorescence is unbranched in its

OCTOBER, 1912.

lower portion. At Kew *F. elegans* has long been in cultivation and has thriven well in the Succulent House under the treatment suitable for Agaves and other species of *Furcraea*. Here, however, it has not yet flowered, and the material for our figure has been obtained from a plant which flowered in the garden of Lady Hanbury at La Mortola, Ventimiglia, in March, 1912. When communicating this material Mr. A. Berger also kindly supplied excellent photographs which show the habit of the plant. In this La Mortola plant the exterior of the flower was more highly coloured than in the Palermo specimen depicted in Todaro's original figure, where the brownish tint is but slightly indicated.

DESCRIPTION.—*Undershrub*, stemless. *Leaves* 40–50, rosulate, at first ascending, ultimately spreading or recurved, $6\frac{1}{2}$ –8 ft. long, 4 in. wide, narrow lanceolate, swollen at the base on the upper side with the margins there compressed, above the base hardly at all contracted, convex at first then by degrees flat and in the upper third channelled, armed at the tip with a straight spine nearly $\frac{2}{3}$ in. long and along the margins with somewhat triangular acuminate spines which curve forwards, dull green with purplish margins on the upper surface, scabrid on the lower surface. *Inflorescence* up to 25 ft. in height, bulbiferous; peduncle about 6 in thick at the base, branching throughout; branches up to $5\frac{1}{2}$ ft. long, many-flowered; bracts lanceolate; pedicels $\frac{2}{5}$ in. long, nodding. *Perianth* glabrous; tube over $\frac{3}{4}$ in. long, pale purple at length brownish outside; lobes $1\frac{1}{4}$ in. long, ovate, very pale green within, the outer rather narrower than the others, purple at length brownish outside. *Filaments* $\frac{2}{5}$ in. long, fusiform, with shortly subulate tips; anthers oblong, slightly cordate at the base. *Style* rather longer than the stamens, channelled below, cylindric above; stigma shortly 3-lobed.

Figs. 1 and 2, stamens; 3, style:—*all enlarged*.



TAB. 7250.

FURCRAEA PUBESCENS.

Native of Mexico.

Nat. Ord. AMARYLLIDÆ.—Tribe AGAVEÆ.

Genus FURCRAEA, Vent.; (*Benth. et Hook. f. Gen. Pl.* vol. iii. p. 739.)

FURCRAEA *pubescens*; acaulis, foliis 12–20 valde recurvatis lanceolatis coriaceis glabris viridibus leviter undulatis, spina terminali vix pungente, aculeis marginalibus deltodeis parvis, pedunculo stricto gracili elongato, floribus in paniculam laxam rhomboideam dispositis bulbillis copiosis intermixtis, pedicellis brevissimis, bracteis deltoideis parvis, ovario viridi pubescente, perianthii segmentis oblongis extus puberulis viridi tinctis, genitalibus segmentis brevioribus.

F. pubescens, Baker *Handb. Amaryll.* p. 201.

Fourcroya pubescens, *Todaro Sopra Nuov. sp. Fourcroya*, Palermo 1879, pp. 14, with 3 figures.

These Furcreas have excited a great deal of attention lately as fibre-yielding plants. It is quite evident that the species which is best worth cultivating for economic purposes is *F. gigantea* (Bot. Mag. tab. 2250). In the present plant the leaves are much shorter and the texture is not nearly so firm. One great difficulty in describing and ascertaining the limits of the species arises from their putting on such a different character when they are cultivated in English conservatories, and when they are grown in the open, either in their native home in America, or in gardens on the shores of the Mediterranean. Last November and December I paid a visit to the Riviera to study in their full development the species which are grown in Mr. Thomas Hanbury's garden at La Mortola, in the Jardin d'Acclimatation at Hyères, and in the other gardens in that region. A full report on this subject will be found in the number for January, 1892, of the Kew Bulletin.

Our plate of the present plant looks very different as regards luxuriance of growth from that of *Todaro*, and yet no doubt they both represent forms of the same species. It was first flowered in the Botanic Garden

AUGUST 1ST, 1892.

at Palermo in the year 1877, and as it produces copious bulbillæ, is easily propagated. The Kew plant, from which the drawing was made, and from which my description is entirely drawn up, was received from St. Petersburg in 1887, and flowered for the first time in the Cactus-house at Kew in November, 1891.

DESCR. Acaulescent. *Leaves* a dozen or more in a rosette, lanceolate, much recurved, coriaceous but not rigid, rather wavy, about a foot long, two inches or two inches and a half broad at the middle, bright green and smooth on both sides, scarcely pungent at the tip, margined with small deltoid prickles. *Peduncle* straight, wandlike, three or four feet long, bearing only three or four small ovate bract leaves. *Panicle* rhomboid, shorter than the peduncle; branches erecto-patent, the lower under a foot long; each node bearing usually a single drooping flower and a bulblet; pedicels very short; bracts deltoid, very small. *Ovary* cylindrical, green, densely pubescent, an inch long. *Perianth* segments oblong, above an inch long, the three outer broader than the three inner, pubescent and tinged with green on the outside. *Stamens* shorter than the segments of the perianth; filament much swollen at the middle. *Style* dilated and deeply three-lobed below the middle, overtopping the anthers.—*J. G. Baker.*

Fig. 1, A single stamen; 2, style; *both enlarged*; 3, whole plant, *much reduced*.

N 2250.



FURCRÆA GIGANTEA. GIGANTIC FURCRÆA.

Class and Order.

HEXANDRIA MONOGYNIA.

Generic Character.

Cor. supera 6-petala, patula. *Filamenta* corolla breviora, inferne obovata; superne subulata. *Stylus* triqueter, basi incrassatus.

Specific Character and Synonym.

FURCRÆA *gigantea*; caulescens, foliis integerimis. *Hort. Kew. ed. alt.* 2. p. 302.

FURCRÆA *gigantea*. *Ventenat in Usteri Annal. der botan.* 19. p. 54. *Plant. grass.* 126*.

AGAVE *fætida*; caulescens foliis integerrimis, scapo ramoso, corollis hexapetalis. *Willd. Sp. Pl.* 2. p. 194. *Jacq. Collect.* 2. p. 212. *Icon. rar.* 2. t. 379. *Lin. Syst. Veg. ed.* 14. p. 388.

ALOE *americana*; viridi rigidissimo et fœtido folio Piet dicta indigenis. *Commel. Hort.* 2. p. 35. t. 18. *sine iflorescentia*.

This genus is rather too nearly allied to AGAVE, from which it has been separated by VENTENAT, and named in honour of M. FOURCROY, author of the elements of Natural History and Chemistry; a separation adopted in the Hortus Kewensis, but rejected by M. POIRET in his supplement to the Encyclopédie botanique. The principal points by which it differs from AGAVE are the shape of the stamens and corolla, the comparative length of these organs and the form of the style.

The FURCRÆA *gigantea* is a truly gigantic plant; the scape rising from the bosom of the leaves, which are seven feet long, to the height of above thirty feet, producing numerous

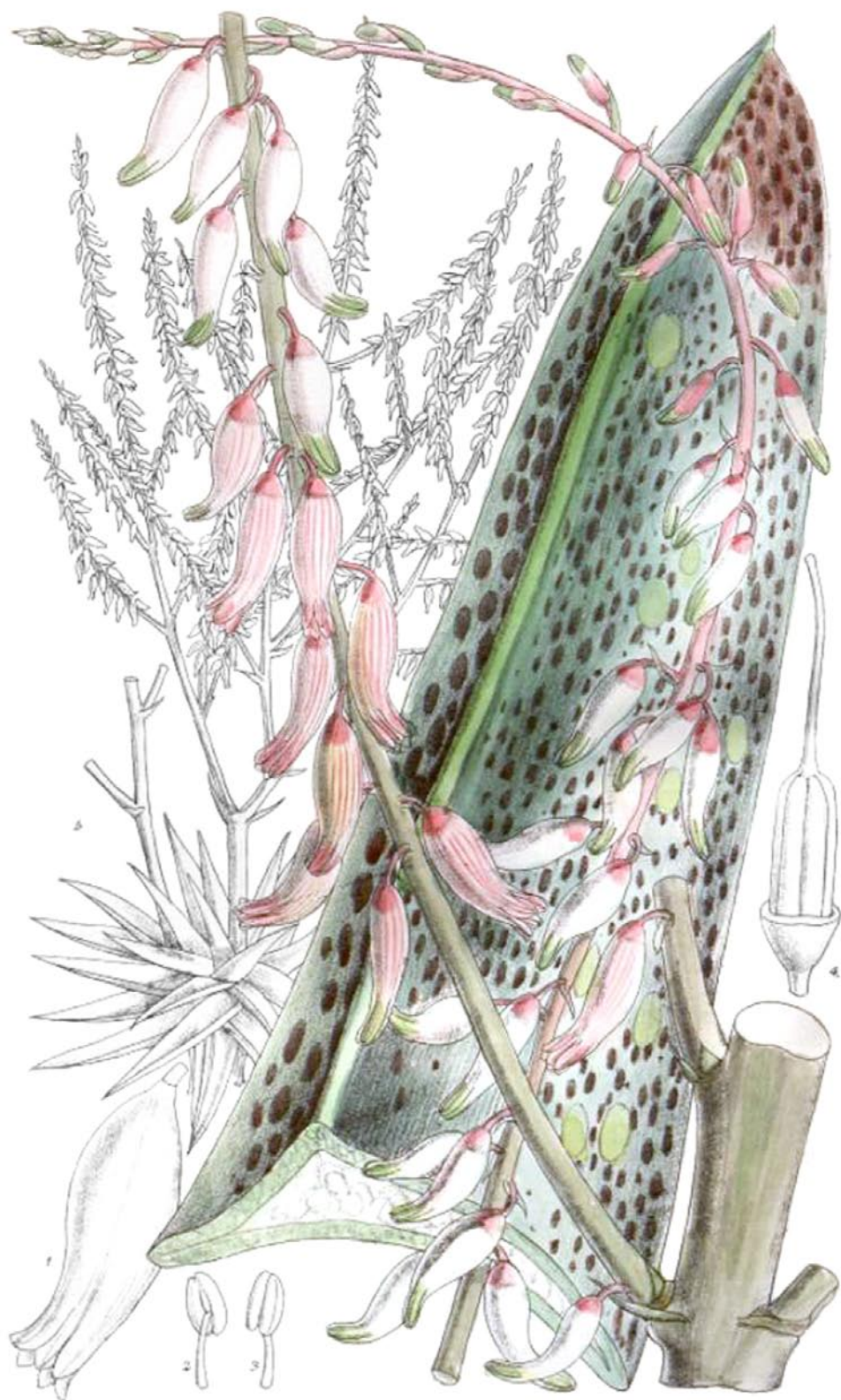
merous alternate branches, again divided into branchlets, one of which with its flowers is represented in our figure. A lanceolate marcescent *bracte* at the base of each branchlet, and small bractes at each pedicle. *Flowers* white, pendulous, on short slender stalks. *Germen* inferior, 3-cornered, striate, about an inch long, a little curved, 3-celled. *Petals* 6, oblong-lanceolate, equal, somewhat fleshy. *Filaments* 6, narrowed at both ends, broad in the middle, not half the length of the petals. *Anthers* oblong, versatile: *pollen* yellow. *Style* 3-cornered, longer than the stamens, hollow: *stigma* capitate, pubescent. *Nectaries* 3, oblong, spreading at the point, inserted at the base of the style. Under the outer bark the liber divides into very tough fibres.

The growth of the flowering stem was extremely rapid.

A specimen of one of the branchlets between four and five feet long, from one of the branchlets of which our drawing was taken, was sent us in December last by the Right Honourable Earl Powis, from his Lordship's seat at Wallcott, in Shropshire, together with a rough sketch of the whole plant.

This plant seems to have equalled in size that described and figured by JACQUIN as above quoted; and, like it produced a great number of viviparous bulbs.

Native of South America. Cultivated according to Mr. ARTON in 1690, at the Royal garden at Hampton-Court.



M.S. del. J.N. Birch. del.

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TAB. 7548

GASTERIA FUSCO-PUNCTATA.

Native of Cape Colony.

Nat. Ord. LILIACEÆ.—Tribe ALOINEÆ.

Genus GASTERIA, Duval; (*Benth. & Hook. f. Gen. Plant.* vol. iii. p. 775.)

GASTERIA *fusco-punctata*; breviter caulescens, foliis 20–30 dense rosulatis lanceolatis strictis brevibus viridibus maculis copiosis fuscis decoratis latere dextero duplicato-marginatis, racemis multis laxis in paniculam amplam dispositis, pedicellis brevibus cernuis, bracteis lanceolatis minutis, perianthii tubo oblongo ventricoso rubello, limbi lobis linearibus viridi tinctis, staminibus inclusis, ovario cylindrico, stylo ovario longiore.

G. *fusco-punctata*, Baker in *Journ. Linn. Soc.* vol. xvi. p. 195; *Fl. Cap.* vol. vi. p. 390.

This is one of the finest of all the *Gasterias*. In its multifarious rosette of long leaves and ample panicle it resembles *G. Croucheri* (*Aloe Croucheri*, Hook. f. in Bot. Mag. tab. 5812), but the flowers are much smaller, and the leaves conspicuously spotted with brown. It was not known to Salm-Dyck and Haworth, and it is here figured for the first time. It was discovered by Mr. Thomas Cooper about 1860, but the precise locality is not known. Our drawing was made from a plant flowered at Kew last July, which has a more compound panicle than the one which I first saw in the collection of the late Mr. Wilson Saunders at Reigate about the year 1870. In cultivation it needs the same treatment as the other members of the genus, which contains about fifty species, and is entirely restricted to the Cape.

Descr.—*Stem* shortly produced below the rosette of leaves. *Leaves* twenty or thirty, forming a dense multifarious rosette, lanceolate, a foot or more long, three or four inches broad low down, tapering gradually to the deltoid-cuspidate apex, very smooth, dull green, with copious irregularly scattered superficial brown spots, furnished with a conspicuous double border on the right hand side, looking upwards from the base. *Peduncle* with panicle three or four feet long. *Racemes* lax, cylindrical; pedicels short, cernuous; bracts lanceolate, minute.

AUGUST 1ST, 1897.

Perianth an inch long, bright pink; tube oblong, ventricose; lobes of the limb linear, more or less tinged with green. *Stamens* shorter than the perianth; anthers oblong, small. *Ovary* cylindrical, trigonous; style longer than the ovary. *Capsule* cylindrical, nearly as long as the perianth.—*J. G. Baker.*

Fig. 1, A flower; 2, back view of anther; 3, front view of anther; 4, pistil: *all enlarged*; 5, whole plant, *much reduced*.

4601.



GRAMMANTHES CHLORÆFLORA.

Yellowwort-flowered Grammanthes.

Nat. Ord. CRASSULACEAE.-PENTANDRIA PENTAGYNIA.

Gen. Char. Calyx campanulatus, 5-fidus, erectus. *Corolla* gamopetala, tubo calycis longitudine, lobis 5 rarius 6 ovalibus expansis. *Stamina* 5—6 lobis alterna, tubo inserta et inclusa. *Squamæ* nulle. *Carpella* 5.—*Herbæ annuum, oppositifoliæ*. Folia ovato-oblonga, remota, plana, sessilia. Flores cymoso-corymbosi. *De Cand.*

GRAMMANTHES *chloræflora*; foliis ovato-oblongis.

GRAMMANTHES *chloræflora*. *Haw. Revis. p.* 18 (*sub. nom. gen. Vauanthis*). *De Cand. Prodr. v.* 3. *p.* 392.

GRAMMANTHES *gentianoides* ? *De Cand. Prodr. v.* 3. *p.* 393.

CRASSULA *gentianoides* ? *Lam. Dict. v.* 2. *p.* 175.

CRASSULA *retroflexa*. *Thunb. Cap. p.* 282. *Ait. Hort. Kew. ed.* 2. *v.* 2. *p.* 194.

CRASSULA *dichotoma*. *Linn. Amæn. v.* 6. *p.* 86. *Ait. Hort. Kew. ed.* 1. *v.* 1. *p.* 392.

Grammanthes, a genus properly separated from *Crassula*, is so named from its having the appearance of a letter (V inverted) inscribed upon the base of the segments of the corolla. Two species are described by De Candolle, but with great doubts as to their being really distinct. We have combined them: for the form of the leaf, at any rate, seems to afford no character; and there is no reason to think the flowers are blue in the *G. gentianoides*, as described by Lamarck. Ecklon and Zeyher have given three additional species.

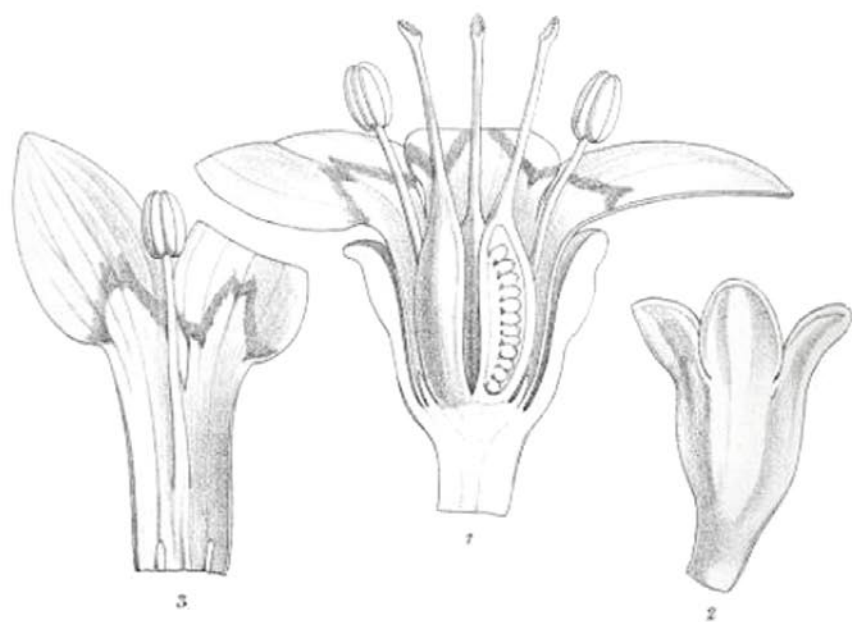
Our present plant is certainly a very pretty thing, a native of the Cape of Good Hope, and, though annual, remaining in beauty a considerable length of time, and may be safely treated as a hardy annual. Planted out in tufts or patches, in the early summer, it is seen covered with flowers of two colours: when they first expand they are pure yellow, with a blood-coloured V, gradually becoming deep tawny, or almost wholly blood-colour, with a yellow eye.

OCTOBER 1ST, 1851.

DESCR. An annual, humble, tufted plant, everywhere glaucous. *Stems* much branched dichotomously, slender. *Leaves* opposite, exactly ovate or ovate-oblong, obtuse, thick and fleshy, grooved or concave above. *Flowers* generally in pairs, forming a leafy corymb. *Pedicels* varying in length, often shorter than the calyx. *Calyx* campanulate, fleshy, glaucous, with five slightly patent, ovate lobes. *Corolla* with a tube as long as the calyx; limb large, spreading, of five ovate segments, bright yellow, with an inverted letter V of a deep blood-colour on each: finally, the whole limb becomes deep blood-colour, paler and orange towards the apices. *Stamens* five. *Filaments* inserted in the tube of the corolla, and alternate with the laciniaë, included. *Anthers* oblong. *Ovaries* five, elongated, narrow, naked at the base, tapering above into a style as long as the tube of the corolla. *Stigma* globose. *W. J. H.*

CULT. This pretty annual requires to be raised under glass. The seeds should be sown about the middle of March, in a shallow pot or seed-pan filled with light soil, and placed in a close frame. Being very minute, they need no covering of soil; a slight pressure with the back of the hand is sufficient to fix them. In watering, care must be taken not to disturb the surface of the soil and displace the germinating seeds by the force of the water. In order to prevent this, it is advisable to place the pot in a pan, with just sufficient water in it to keep the surface of the soil moist. After germination the young plants must not be overwatered, for, being of a succulent nature, they are liable to damp off. When they are of sufficient strength they should be thinned out into other pots, or planted in patches in the open border about the end of May. *J. S.*

Fig. 1. Portion of corolla and stamens. 2. Portion of calyx and pistils:—*magnified.*



TAB. 6401.

GRAMMANTHES CHLORÆFLORA, *var.* CÆSIA.

Native of South Africa.

Nat. Ord. CRASSULACEÆ.

Genus GRAMMANTHES, DC.; (*Benth. et Hook. f. Gen. Plant.* i. p. 658).

GRAMMANTHES *chloræflora*; glaberrima, glauca, diffuse dichotome ramosa, foliis sessilibus ovatis acutis concavis carnosulis, floribus axillaribus et terminalibus pedicellatis, calyce campanulato, tubo angulato, lobis brevibus ovato-rotundatis obtusis, corolla tubo limbo uquilongo, lobis ovatis, squamulis minimis linearibus, filamentis brevibus, antheris exsertis.

G. *chloræflora*; DC. *Prodr.* vol. iii. p. 392; *Harv. et. Sond. Fl. Cap.* vol. ii. p. 831; *Bot. Mag.* t 4607; *Moore in Garden. Mag.* vol. ii. p. 9, *cum Ic.*

G. *cæsia*, et. G. *flava*, E. Meyer *Pl. Drège.*

G. *gentianoides*, DC. *Prodr.* l. c. 393; *Planchon in Fl. des Serres*, ser. i. v. t 518: *Morren Belgiq. Hort.* i. p. 447, *cum Ic.*

G. *Sebæoides* et G. *depressa*, Eckl. et. Zeyh. *Pl. Afric. Austr.*

CRASSULA *gentianoides*, Lam. *Dict.* vol. ii. p. 175.

C. *retroflexa*, Thunb. *Fl. Cap.* p. 282; *Ait. Hort. Kew. ed. 2*, vol. ii. p. 194.

C. *dichotoma*, Linn. *Amæn. Acad.* vol. vi. p. 86; *Ait. Hort. Kew. ed. i.* vol. i. p. 392.

VAUANTHES *chloræflora*, Haw. *Revis. Succul.* p. 19.

Judging from the number of names which have been given to this little plant by collectors in its native country, it ought to be very variable; though I doubt whether it is more so than other annual *Crassulaceæ*. It has already (in 1851) been figured and described in the MAGAZINE (as quoted above), but this figure has been overlooked by every succeeding author, and the form there depicted differs from this in nothing but its less glaucous leaves, larger flower, and (erroneously) in the omission of the hypogynous scales, which, usually though so conspicuous in the order, are so minute (according to Harvey even obsolete) in this genus, as to be hardly distinguishable in the dried specimens, whence Haworth in his description of the genus (*Vauanthes*) and De Candolle (in that of *Grammanthes*) describe them as absent. Harvey, in the 'Flora Capensis' describes five varieties, distinguished by the form

DECEMBER 1ST, 1878.

of the leaves, of the calyx-lobes, and of the petals, all of which vary much in length and breadth; that here figured agrees best with his var. *vera*, which is E. Meyer's *G. cæsia*. Lamarck indeed (following Plukenet) describes a species (*G. gentianoides*) as blue flowered; but this, as already pointed out in this work, is no doubt an error. *Grammanthes chloræflora* was introduced into England in 1788 by Masson (a collector sent from Kew), but was known long before to botanists, being described by Plukenet in his 'Almagesti Botanici,' in 1700, as identified by Lamarck, though the rude figure (t. 415 f. 6,) is hardly recognizable as belonging to this plant, and the flower is described as blue. The specimen here figured flowered at Kew in July of the present year.

DESCR. A low glaucous annual herb, four to five inches high, usually dichotomously branched. *Leaves* sessile, ovate, acute, one-fourth to one-half an inch long, succulent, concave. *Flowers* axillary and terminal, peduncled, one-third to two-thirds of an inch in diameter, at first orange-yellow with a deep v-shaped mark at the base of each corolla lobe, finally more red. *Calyx* campanulate; tube obscurely angled; lobes usually broadly ovate, obtuse, but sometimes produced and lanceolate. *Corolla*-tube equalling the calyx or longer; lobes ovate or lanceolate, acute. *Stamens* with the filaments much shorter than the corolla-lobes, anthers exserted. *Hypogynous glands* minute, linear. *Carpels* 5, with slender straight subulate styles.—*J. D. H.*

Fig. 1, Vertical section of flower; 2, calyx; 3, portions of corolla and stamen:—*all enlarged.*



GREENÓVIA AÚREA. GOLDEN GREENOVIA.

Class and Order.

DODECANDRIA POLYGYNIA.

(Nat. Ord.—CRASSULACEÆ.)

Generic Character.

Calyx crateriformis, multifidus, laciniis linearibus. *Petala* plurima angusta. *Stamina* numero petalorum dupla. *Squamæ* perigynæ nullæ. *Ovaria* receptaculo ad dimidium immersa, placentis horizontalibus, ovulis superioribus erectis, inferioribus pendulis. *Carpidia* plurima follicularia, compressa, ad medium usque cum receptaculo connata, superne libera, medio horizontaliter ad placentas dehiscencia.—Herbæ *Canarienses subacaules, propaginibus sæpe adauctæ; foliis sessilibus, crassis, rosulatis, integris; corollis aureis.* P. B. Webb.

Specific Character and Synonyms.

GREENOVIA aurea; foliis obovato-spathulatis submuticis glaucescentibus, pedicellis glanduloso-pubescentibus. P. B. Webb.

GREENOVIA aurea. Webb, *Phytogr. Canar. Sect. I. p. 199. pro parte et tab. 36 quoad figg. 3, 5, 6, 7, 8, 8 bis, 9, 10, 11, 12.*

SEMPERVIVUM aureum. Chr. Smith in *Hort. Berol. p. 57. Hornem. Hort. Hafn. Suppl. p. 60. Link, Enum. p. 20. D C. Prodr. 3. p. 412.*

SEMPERVIVUM calyciforme. Haw. *Suppl. p. 69. Bot. Reg. tab. 892.*

The Genus GREENOVIA was founded in the *Phytographia Canariensis* upon the present species of *House-leek*, discovered originally in the Canary Islands by CHRISTIAN SMITH. The name was given in honor of GEORGE BELLAS GREENOUGH, Esq., the celebrated Geologist and enlightened patron and promoter of useful knowledge. As those of BUCKLAND, DELABÈCHE,

DELABÈCHE, and many others, have already been borrowed from the sister Science, this meed was justly due to one of the fathers of British Geology, of whose friendship and obliging disposition I have myself personally a lively recollection.

GREENOVIA is distinguished from SEMPERVIVUM, and, indeed, from all known CRASSULACEÆ, by its deeply immersed ovaries, their anomalous placentation, and the position of the ovules, and the not less unusual dehiscence of the fruit. Its habit is that of the true European House-leeks, and not of the Canarian forms, ÆONIUM, AICHRYSON, and PETROPHYTES of the Phytographia.

It is scarcely possible to avoid some error in describing dried specimens of a family so difficult to examine in that state as the CRASSULACEÆ. This will be the proper place to rectify one of these, and to mention a new species of this Genus, till now confounded with the present plant. The inspection of living plants of both, sent from the Canaries with the dried collection in 1830, and preserved since by Mr. YOUNG, in his nursery at Milford, near Godalming, has enabled me to do this. Mr. YOUNG, indeed, thinks that there is still a third species amongst the living specimens sent; but this cannot be so easily ascertained at present. This new species I call GREENOVIA *rupifraga*, as it grows in the fissures of naked tufa, which it widens by the increase of its stems. Its leaves are wedge-shaped and narrow, instead of being rounded and spatulate as in GREENOVIA *aurea*, with a much more prominent point or tip, formed by the projecting midrib, and their sea-green colour is much more silvery. A particular description will be given of this plant whenever it flowers.

The true GREENOVIA *aurea* inhabits the woody region on the rocks called Los Organos, in the valley of Orotava, above Aqua Mansa, in Tenériffe, and on Mount Saucillo in the Grand Canary, where it was found by DESPREAUX. GREENOVIA *rupifraga* is found on that lofty chain called the Filo de las Canyadas*, which forms the lips of the great primaeval crater of the island, out of which the cone of the Peak springs. Its station being thus above even the region of Pines, where there is frost occasionally, it is very possible the species will sustain the winters of England, if planted in a dry spot. Damp must be carefully guarded against, as the station which it inhabits being above the clouds, is as arid as the great Sahara. On the contrary, the beautiful zone of Laurels, on the outskirts of which the *G. aurea* is found, drips with continual moisture from the clouds floating on the surface of the trade winds, and which are arrested in their progress southwards by the lofty mass of the island.

It is probable that Christian Smith likewise confounded these two species, for his habitat of Mount Chiquita belongs to the high region.

In the plate 36 of the Phytographia Canariensis, the figures have, unfortunately, been taken indiscriminately from both these plants. This confusion may be thus rectified, the figures 3, 5, 6, 7, 8, 8 bis, 9, 10, 11, and 12 belong to *Greenovia aurea*, the remainder, 1, 2, 4, 13, 14, and 15, represent *Greenovia rupifraga*. P. B. Webb.

* As the English printing offices do not possess the Spanish liquid n, I insert a y for the pronunciation.



TAB. 5220.

GUZMANNIA TRICOLOR.

Three-coloured Guzmannia.

Nat. Ord. BROMELIACEÆ.—HEXANDRIA MONOGYNIA.

Gen. Char. Perigonii liberi sexpartiti lacinie exteriores calycinæ æquales, basi cohærentes, spiraliter convolutæ, interiores petaloideæ, inferne teneriores in tubum convolutæ, apice firmiores, erectæ, basi intus nudæ. Stamina 6, hypogyna; filamenta basi perigonii laciniis interioribus agglutinata, superne latiora, apice connata; antheræ dorso affixæ, utrinque acutæ, in cylindrum coalitæ. Ovarium liberum, triloculare. Ovula in loculorum angulo centrali prope basim plurima biseriata, adscendentia, anatropa. Stylus filiformis; stigmata 3, linearia, brevia, erecta. Capsula cartilaginea, oblongo-cylindracea, trilocularis, loculicido-trivalvis, valvis endocarpio mox soluto duplicatis, explanatis vel tortis. Semina plurima, e basi dissepimentorum erecta, oblonga, acuminata, pilis papposis stipata.—Herba Americana tropica; foliis radicalibus lineari-ensiformibus cartilagineis, planis, basi involutis; scapo inferne squamoso, floribus spicatis inter bracteas latentibus. Endl.

GUZMANNIA *tricolor*.

GUZMANNIA *tricolor*. Ruiz et Pav. *Fl. Per. et Chil.* v. 3. p. 38. t. 261. Lodd. *Bot. Cab.* t. 462. Lindl. *Coll. Bot.* t. 8. Hook. *Exot. Fl.* t. 163 (bis). Bæm. et Schult. *Syst. Veget.* v. 7. p. 1231.

POURRETTIA *sympagantha*. Ruiz et Pav. *Syst.* p. 82.

When in flower this is a very gay-coloured and handsome Bromeliaceous plant, and deserves the name quadricolor as much as or better than *tricolor*, for it exhibits in its inflorescence four very striking and different colours; the numerous and large closely imbricated bracts are, below, yellow-green, deeply and longitudinally streaked with purplish-black; the superior bracts are bright red, and the flowers are pure white. It was first described as a native of Peru, but has since been found in Guayaquil, in St. Domingo, and in Jamaica. It is easily cultivated in a moist stove, and blossoms in the summer months. Only one species of this pretty genus is known.

DESCR. This quite resembles a *Tillandaia* or *Bromelia* in its mode of growth, and is everywhere glabrous. Leaves all radical, broad, linear-ensiform, involute, and broad and concave at the

DECEMBER 1ST, 1860.

sheathing base, the rest broadly channelled, minutely striated, the margin quite entire, the apex rather apiculate than acuminate; colour a full green; their length varies from one to two feet. *Scape* as long as the leaves, central, erect, almost resembling, with its young inflorescence, a head of Asparagus, below, at the very base, clothed with long, sterile, acuminate *bracteas*, above with short, ovate, acute, closely imbricated fertile ones, these of a bright and pale yellow-green, richly streaked with blackish-purple; towards the apex of the spike they are tinged with red, and at the very apex they are rich scarlet. *Calyx* deeply cut into three oblong segments, rigid and white, erect. *Corolla* white. The other parts of the flower are as described in the generic character.

Fig. 1. Bract, with its flower. 2. Corolla, laid open. 3. Pistil.



MS del JN Fitch lith.

Vincent Brooks Day & Son Lith

L. Reeve & Co London

TAB. 8828.

HAWORTHIA CHALWINI.

South Africa.

LILIACEAE. Tribe ALOINEAE.

HAWORTHIA, *Duval; Benth. et Hook. f. Gen. Plant.* vol. iii. p. 777.

Haworthia (§ Coarctatae) **Chalwini**, *Marloth et Berger in Notizbl. K. Bot. Gart. Berlin*, vol. iv. p. 247 (1906); *Marloth, Fl. S. Africa*, vol. iv. p. 89, t. 22, fig. A (1915); *Berger in Engl. Pflanzenr. Liliac.-Asphod.-Aloin.* p. 85 (1908); species ex affinitate *H. Reinwardtii*, Haw., a qua foliis brevioribus ovato-deltaideis supra planis differt.

Herba succulenta. Caulis foliatus, erectus, 12 cm. altus, foliis inclusis 3–3.5 cm. diametro. *Folia* dense imbricata, ovato-deltaidea apice incurvata, 23 mm. longa, 15 mm. lata, 5–6 mm. crassa, aereo-purpurea, supra plana levique, subtus basi levia, besse superiori longitudinaliter circiter 13-striata, lira media prominenti, verrucis margaritaceis seriatim dispositis ornata. *Pedunculus* tenuis, 25 cm. altus; racemus 5 cm. longus, pauciflorus; bracteae ovatae, 2 mm. longae; pedicelli 4 mm. longi. *Perianthium* 15 mm. longum, urceolatum, 2-labiatum, basi viride, parte media dilute roseum, apice album; lobi oblongi, obtusi. *Stamina* inclusa. *Ovarium* oblongum.—C. H. WRIGHT.

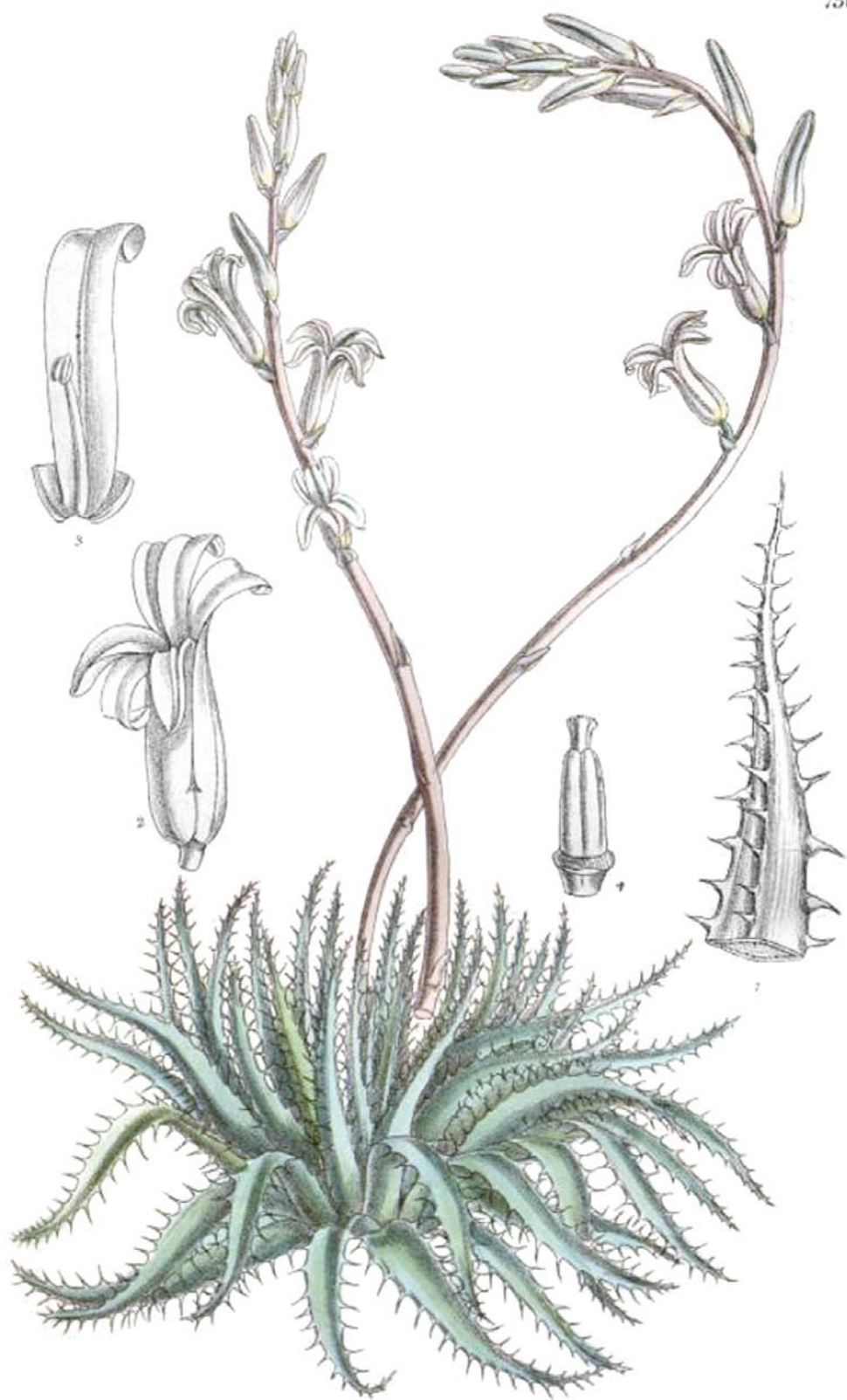
The South African genus *Haworthia*, according to the recent monograph which we owe to Mr. A. Berger, includes some three score species, and it is somewhat remarkable that in the case of five-sixths of the species enumerated in the 'Flora Capensis' the precise habitat was unknown in 1896. Most of these species were introduced to cultivation in Europe towards the close of the 18th and the beginning of the 19th Centuries, during a period when the growing of succulent plants was much in vogue. Many of these were first described by the late Mr. A. H. Haworth, one of the founders of the Hull Botanic Garden, in whose honour Mr. H. A. Duval named the genus to which the plant here figured belongs. A few of the members of this genus had been described by earlier authors as species of *Aloe*, from which, however, *Haworthia*, as understood by Duval, differs in having a perianth with an oblong tube and a bilabiate

OCTOBER-DECEMBER, 1919.

limb. The only species of *Haworthia* recorded from outside South Africa is the Angolan *H. angolensis*, Baker, but it now appears that this exception is only apparent, for *H. angolensis* has been transferred by Berger to his genus *Chortolirion* as *C. angolense*. The genus *Chortolirion*, Berger, was founded for the reception of those species referred by Baker and Engler to *Haworthia* which differ from the true *Haworthias* in having their leaves narrow and comparatively thin above, but wide and conniving in a bulb-like fashion below. The subject of our plate, *H. Chalwini*, is a very striking species of columnar habit; it bears most resemblance to *H. Reinwardtii*, Haw., with which it agrees in the bronze-purple colour of the leaves and in the pearly protuberances on their under and outer surface. The material for our figure has been derived from a plant raised from a cutting presented by Dr. Marloth in 1913. This plant flowered in a succulent house at Kew for the first time in October, 1916.

DESCRIPTION.—Herb, succulent; stem leafy, erect, 5 in. high, including the leaves $1\frac{1}{4}$ – $1\frac{1}{2}$ in. thick. *Leaves* closely imbricate, ovate-deltoid with an incurved tip, nearly 1 in. long, $\frac{2}{3}$ in. wide and $\frac{1}{4}$ in. thick, bronze-purple, smooth and flat above, smooth near the base beneath, the upper two-thirds about 13-striate longitudinally, the central ridge distinct, and like the rest ornamented with serially arranged pearly-white warts. *Peduncle* slender, 10 in. high; raceme 2 in. long, few-flowered; bracts ovate, $\frac{1}{12}$ in. long; pedicels $\frac{1}{6}$ in. long. *Perianth* $\frac{2}{3}$ in. long, urceolate, 2-lipped, green at the base pale rose in the centre and white at the tip; lobes oblong, obtuse. *Stamens* included. *Ovary* oblong.

TAB. 8828.—Fig. 1, flower; 2 and 3, stamens; 4, pistil:—*all enlarged*.



TAB. 7505.

HAWORTHIA XIPHIOPHYLLA.

Native of Cape Colony.

Nat. Ord. LILIACEÆ.—Tribe ALOINEÆ.

Genus HAWORTHIA, *Duval*; (*Benth. et Hook. f. Gen. Plant.* vol. iii. p. 777.)

HAWORTHIA *xiphiophylla*; acaulis, foliis 40–50 dense rosulatis lanceolatis pallide viridibus facie planis dorso distincte carinatis e basi ad aristam terminalem pellucidam sensim attenuatis, aculeis marginalibus magnis pellucidis, carina dorsali aculeis consimilibus prædita, pedunculo semi-pedali bracteis vacuis paucis ovatis pallidis prædito, racemo laxo 10–12-floro, pedicellis brevibus ascendentibus, bracteis ovatis parvis, perianthii albi tubo oblongo-cylindrico lobis lineari-oblongis tubo brevioribus 3 inferioribus quam superioribus magis recurvatis, genitalibus tubo inclusis, antheris subglobosis parvis, ovario oblongo, stylo brevissimo, stigmate capitato.

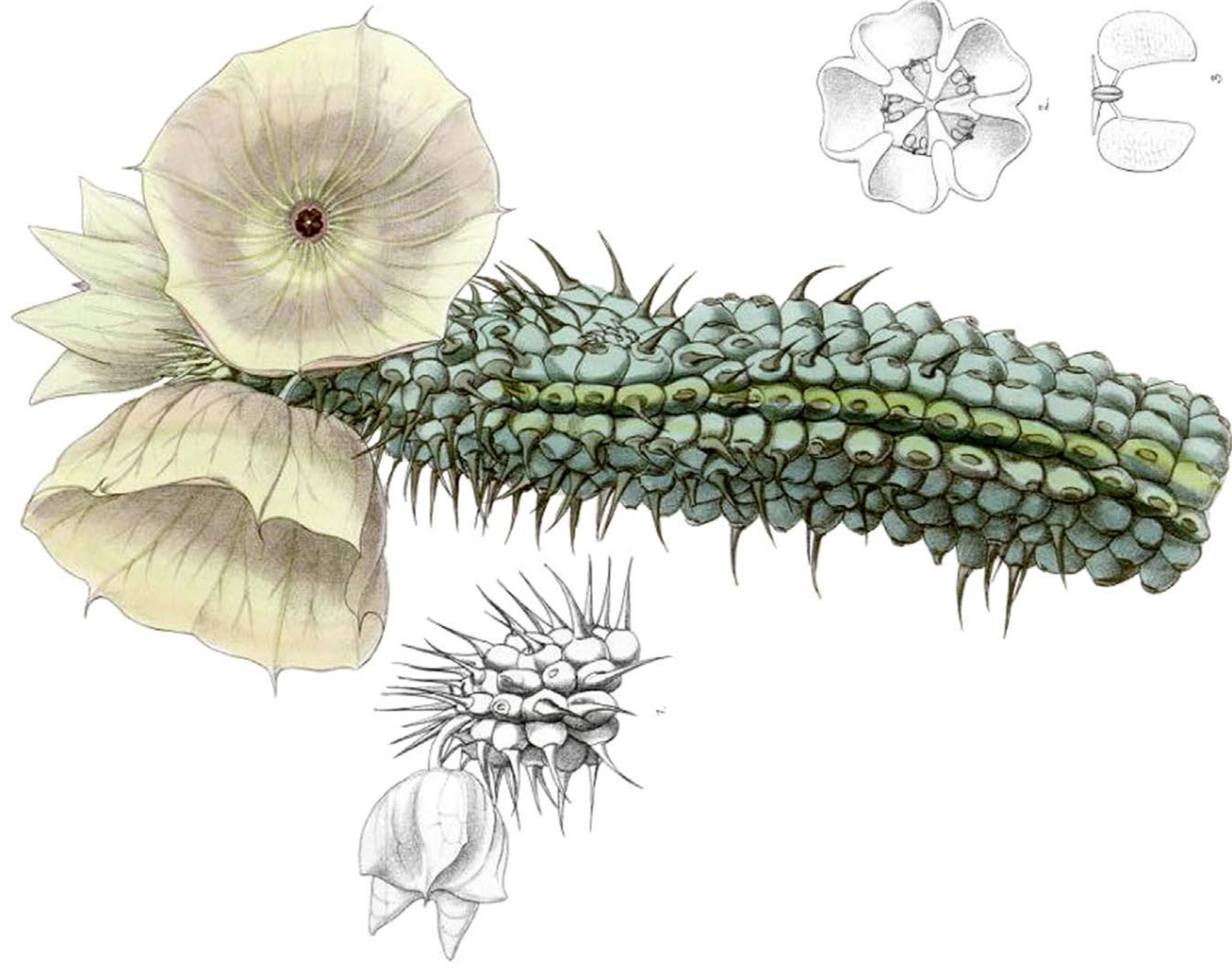
This pretty little new *Haworthia* belongs to the small section *Arachnoidea*. Of the old well-known species of the same section it differs from *H. setata*, Haw., by its narrower, thinner leaves, and from *H. arachnoidea*, Haw. (*Aloe arachnoidea*, Haw. (*Bot. Mag.* tab. 756) by the leaves not being at all pellucid or lineate. Like the other species of the genus it requires protection in winter. It was sent to the Royal Gardens, Kew, from the neighbourhood of Uitenhage, by Mr. C. Howlett, late a member of the garden staff at Kew, and now foreman in the nursery of Messrs. Smith Brothers, of Uitenhage. It flowered for the first time in April, 1896.

Descr.—*Leaves* forty or fifty in a dense sessile rosette, lanceolate, two inches long, one-third of an inch broad low down, tapering gradually to a large pellucid terminal awn, fleshy, pale green, not at all pellucid or lineate on either surface, flat on the face, acutely keeled on the back, margined with large pellucid prickles, which extend to the upper part of the keel. *Peduncle* terete, half a foot long, furnished with a few small scariose ovate empty bracts. *Perianth* white, three-quarters of an inch long; tube oblong-cylindrical; lobes linear-oblong, rather shorter than the tube, the three lower more reflexed than the three

NOVEMBER 1ST, 1896.

upper. *Stamens* included in the perianth-tube; anthers small, subglobose. *Ovary* oblong ; style very short; stigma capitate.—*J. G. Baker*.

Fig. 1, A leaf; 2, a flower, complete; 3, portion of the perianth, with stamen; 4, pistil:—*All enlarged*.



TAB. 6348.

HOODIA BAINII.

Native of South Africa.

Nat. Ord. ASCLEPIADACEÆ.—Tribe STAPELIEÆ.

Genus HOODIA, *Sweet*; (*Benth. et Hook. f. Gen. Plant.* vol. ii. p. 783; *Dyer in Bot. Mag. sub tab.* 6228 *et in Journ. Linn. Soc.* vol. xv. p. 251.)

HOODIA *Bainii*; cæspitosa, caulibus cactiformibus erectis cinereis tuberculis transversim compressis in spinis fuscis desinentibus et in costas longitudinaliter dispositis crebre tectis, floribus 1–3 summis ramis aggregatis pedunculis pollicaribus, sepalis lanceolato-subulatis, corolla cyathiformi diametro tri-pollicari pallide purpurascente-flavida venosa glabra margine dentibus quinque recurvis, corona exterior punicea lobis late oblongis obscure biridis.

This very interesting addition to the Cape Flora was originally brought by Mr. Thomas Bain from Uitkyk, on the road through the Karroo to Beaufort West, in the autumn of 1876, and given to Sir Henry Barkly with flowers preserved in spirit (from one of which the corona in the plate has been drawn). Subsequently Mr. M'Gibbon, the Curator of the Cape Botanic Garden, obtained specimens of the same plant from Mr. Lycett of Worcester, South Africa; and one of these was brought by the former to this country on his recent visit, and presented to the Royal Gardens, where it flowered in July of last year. From this the drawing for the accompanying plate has been made.

Hoodia Bainii is, as Sir Henry Barkly has pointed out to me, undoubtedly closely allied to *H. Barklyi*, from which, however, it seems to differ in its more robust habit, larger flowers, and scarcely bifid corona. I may take this opportunity of putting on record the fact that the plant which afforded the materials for my diagnosis of the latter plant (*Journ. Linn Soc.* vol. xv. p. 252), was also brought from the Karroo in 1873 by Mr. Lycett, and after flowering in the

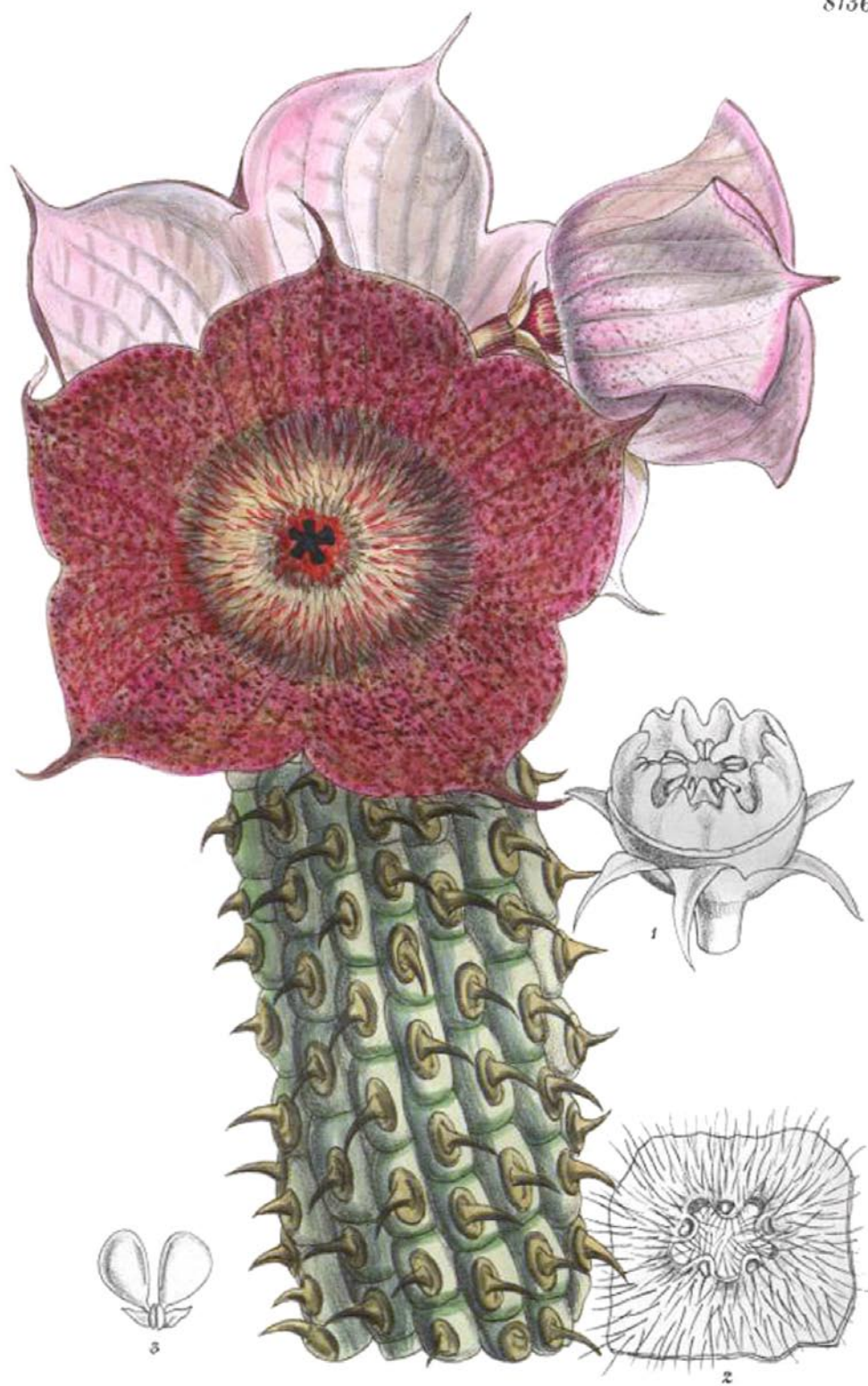
MARCH 1ST, 1878.

Cape Botanic Gardens, damped off as these plants are unhappily too apt to do in cultivation; it has apparently not since been found.

Sir H. Barkly informs me that *Hoodia Bainii* is known locally as Wolves' n'Guaap, the name n'Guaap being also given to *Stapelia pilifera*, Thunb.

DESCR. *Stems* numerous from the crown, ashy-green in colour, erect, cylindric, leafless, younger portions with closely-set spirally-arranged laterally-compressed tubercles, ultimately confluent into more or less marked prominent longitudinal ridges; tubercles tapering into a stout sometimes deflexed brown prickle. *Flowers* produced near the apex of the branches, 1–3 together; buds acutely pentagonal; pedicels about an inch long. *Calyx* short, five-partite; segments acuminate. *Corolla* about three inches in diameter, pale buff-yellow becoming purplish in decay, cup-shaped, margin with five recurved teeth the apices of the obsolete lobes. *Corona* double; exterior spreading, adnate to the staminal tube by five vertical septa, five-lobed, lobes broadly oblong, concave, obscurely bifid; interior of five narrowly oblong incumbent scales adnate to the septa and the base of the anthers. *Anthers* short, oblong, inappendiculate, incumbent on the stigma, and half immersed in it. *Stigma* flattened at the apex. *Pollen-masses* erect.—*W. T. Thiselton Dyer.*

Fig. 1. Apex of stem with unopened bud, natural size; 2, gynostemium from above; 3, pollen-masses:—*both magnified.*



M.S. del., J.H. Fisch. lith.

Vincent Brookes, Day & Son, Lithing

L. Reeve & Co. London.

TAB. 8136.
HOODIA CURRORI.
Angola.

ASCLADIADACEAE. Tribe STAPELIEAE.

HOODIA, *Sweet; Benth. et Hook. f Gen. Plant.* vol. ii. p. 783.

Hoodia Currori, *Decne in DC. Prodr.* vol. viii. p. 665; *Hooker, Niger Fl.* p. 458; *Dyer in Journ. Linn. Soc.* vol. xv. p. 251, t. 5, f. 2; *N. E. Br. in Hook. Ic. Pl.* vol. xx. sub t. 1905, p. 3; *K. Schum. in Engl. & Prantl Pflanzenfam.* vol. iv. pt. ii. p. 275; *N. E. Br. in Fl. Trop. Afr.* vol. iv. pt. i. p. 491; *Gard. Chron.* 1906, vol. xl. p. 62, f. 27; affinis *H. Gordoni*, sed corolla majore intra pilosa facile distinguitur.

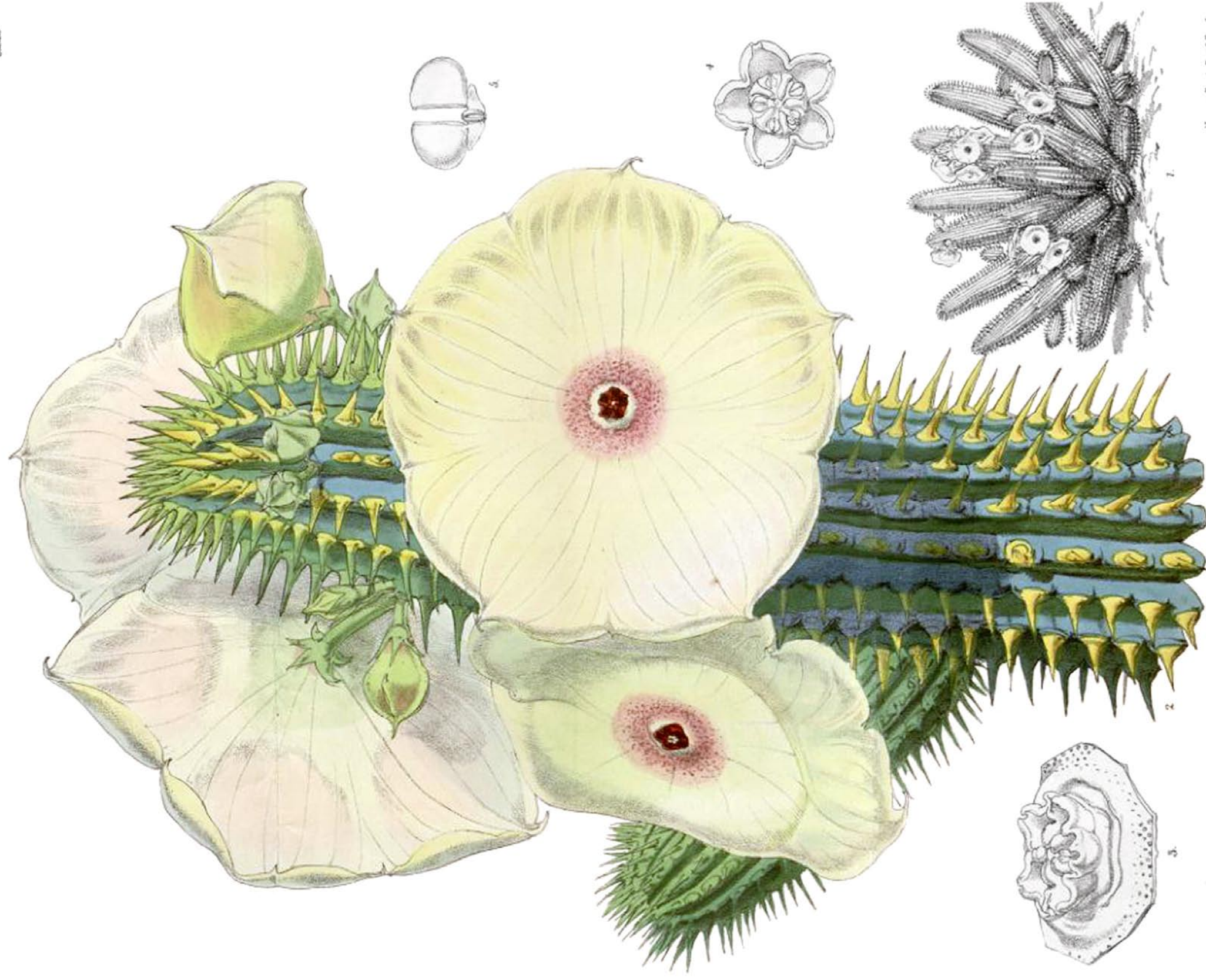
Planta succulenta 45–60 cm. alta, basi ramosa, glauco-virens. *Rami* erecti, 4·5–6·5 cm. crassi, multiangulati, glabri; angulis spinoso-tuberculatis. *Flores* magni, prope apicem ramorum enati. *Pedicelli* 1·8–2 cm. longi. *Sepala* 6–8 mm. longa, e basi ovata sobulato-attenuata. *Corolla* 9–12·5 cm. diam., patelliformis, vix lobata, 5-cuspidata, purpureo-rubra disco radiato-ochracea, intra purpureo-pilosa; tubus 6 mm. longus, 8 mm. diam., circa orem leviter 5-taberolatus. *Corona exterior* cupularis, 5-sulcata, 10-dentata, glabra, purpureo-brunnea, dentibus deltoideis obtusi, 1 mm. longis. *Coronae interioris* lobi fere 1 mm. longi, oblongo-lineari, obtusi, antheris incumbentes, basi partitionibus cum corona exteriori connexi, purpureo-brunnei.—*Scytanthus Currori*, *Hook. Ic. Pl.* vol. vii. tt. 605-606; *S. Burkei*, *Hook. Ic. Pl.* vol. vii. sub t. 625. *Adenium nam-aquarium*, *Henslow in The Gardener*, 1901, p. 1194, f. 16.

This is the third out of the six described species of this remarkable genus that has flowered at Kew and been figured in the Botanical Magazine, the other two being *H. Gordoni* (t. 6228), and *H. Bainii* (t. 6348), whilst, so far as is known to me, no other specimens are recorded as having flowered in any part of the world outside their native country. In its stems *H. Currori* differs very little from *H. Gordoni* and some of the other species, but its flowers are larger than those of any other, and more hairy on the inner surface; they are also more richly coloured than in the other two species which have flowered at Kew. The specimen here figured was sent to Kew, in 1905, from Angola, by Mr. J. Gossweiler, Curator of the Botanic Garden at Loanda. At first it was subjected to dry treatment, but as this failed to induce active growth, it was placed in a moist stove, where it thrived and flowered in June, 1906, the flowers lasting for about fifteen days.

MAY 1ST, 1907.

Descr.—A bushy, succulent perennial, 2–2½ ft. high. *Stems* 1¾–2½ in. thick, cylindric, with thirteen or more angles formed of contiguous spine-tipped tubercles, glabrous, pale glaucous-green. *Flowers* arising in the grooves near the top of the stems, two to four (or more ?) together, successively developed. *Pedicels* ¾ in. long, ⅛ in. thick, glabrous, purple-tinted. *Sepals* ¼–⅓ in. long, subulate-attenuate from an ovate base, glabrous. *Corolla* 3½–5 in. in diameter, saucer-shaped, obscurely lobed, with live subulate cusps, purplish-red, with ochreous-tinted rays on the central part, glabrous on the back, covered with erect purple hairs all over the inner face; the tube (enclosing the corona) very small, about ¼ in. long, ⅓ in. in diameter outside, raised around the mouth into five dull red or sienna-red tubercles, and the orifice thickly roofed over with intermingling hairs, so that only very minute insects can enter. *Outer corona* exceeding the style-apex by half its length, resembling a five-grooved cup, with five pairs of deltoid, obtuse teeth nearly ½ line long, glabrous, dark purple-brown, shining. *Inner corona-lobes* nearly ½ line long, oblong-linear, obtuse, closely incumbent on the anthers and not produced beyond them, dorsally connected by partitions with the outer corona, glabrous, dark purple-brown, shining.—N. E. BROWN.

Fig. 1, flower with the corolla removed, showing the corona; 2, mouth of the corolla-tube; 3, pollen-masses:—all enlarged.



TAB. 6228.

HOODIA GORDONI.

Native of Little Namaqualand.

Nat. Ord. ASCLEPIADACEÆ.—Tribe STAPELIÆÆ.

GEN. CHAR.—*Calyx* brevis, 5-partitus, foliolis acuminatis basi glandulis minutis interpositis. *Corolla* tubo parvo, limbo maximo dilatato concavo sæpius demum explanato membranaceo nervoso obsolete 5-lobo, lobis abrupte apiculatis. *Corona* duplex, cyathiformis vel rotata; exterior tubo stamineo septis affixa, 5-partita, segmentis latis cavis bifidis vel plus minusve 2-lobis; interior squamis 5 septis antherisque basi adnatis oblongis incumbentibus. *Antheræ* breves, oblongæ, inappendiculatæ, stigmati incumbentes et semiimmersæ. *Pollinia* erecta, semi-orbicularia, funiculo appendice membranacea lanceolata munito. *Stigma* vertice subplanum. *Folliculi* utrinque acuminati, læves.—Herbæ cactiformes Africæ australis et tropicæ incolæ.

HOODIA Gordoni; corolla diametro 4-pollicari demum explanata intus glabra, corona exterioris segmentis oblongis obscure bilobis.

H. Gordoni, *Sweet Hort. Brit.*, 2nd ed., p. 359.

STAPELIA Gordoni, *Mass. Stap. Nov.*, p. 24, pl. 40; *Don Gen. Syst.*, vol. iv., p. 116.

MONOTHYLACEUM *Gordoni*, *Don. l.c.*

SCYTANTHUS *Gordoni*, *Hook. Ic.*, pl. 625.

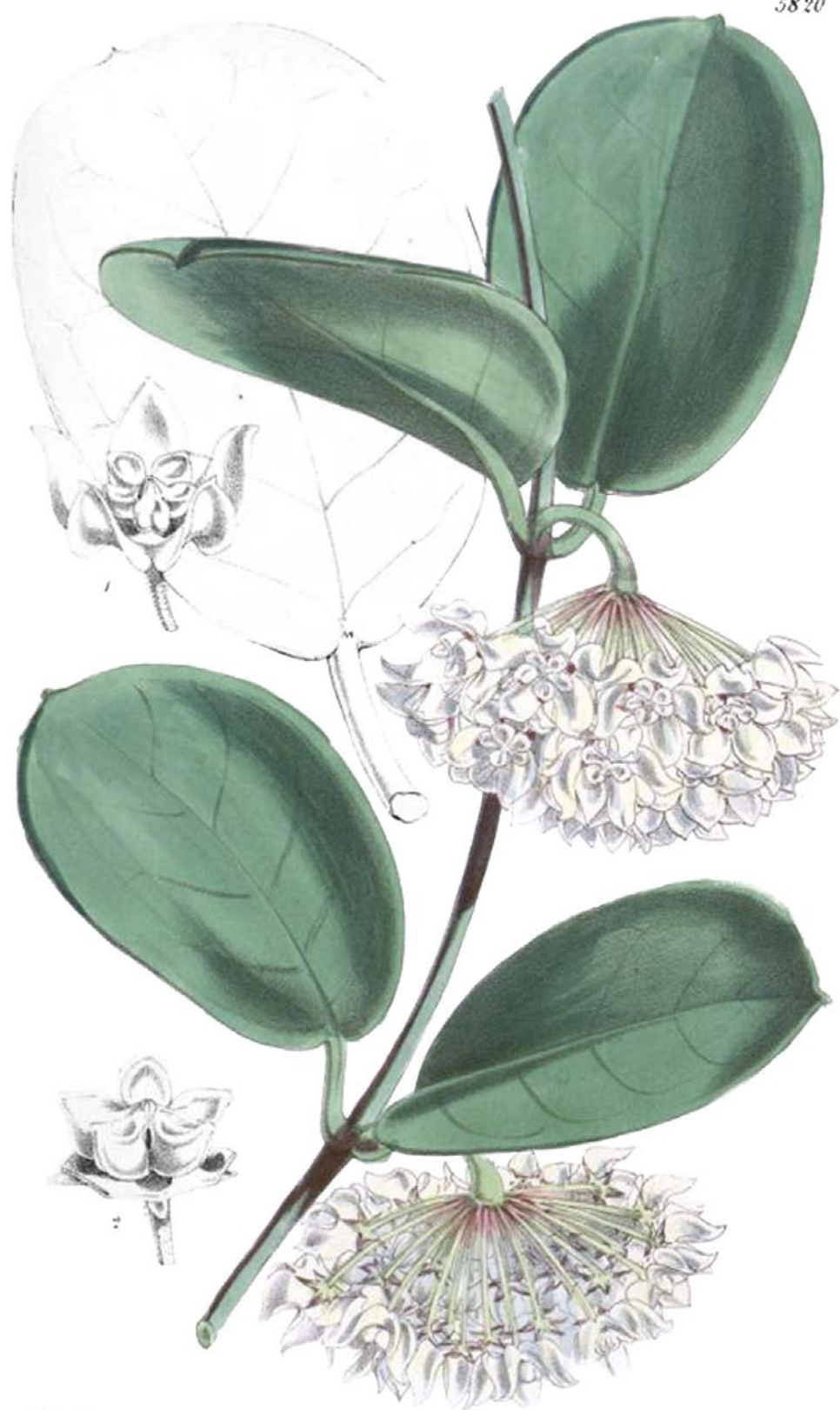
This very remarkable plant was discovered near the Orange River by Colonel Gordon. He made a drawing on the spot, which Masson published in his “*Stapeliæ Nova*” (1796). For nearly half a century nothing more was known of it than this figure, which seemed so extraordinary “that our Stapelia-growers used to speak of it as a fiction.” The plant, however, was rediscovered in quantity by Mr. Burke, a gardener of the Earl of Derby, who was sent out at that nobleman’s expense to accompany Mr. Zeyher on an expedition for collecting plants and animals. Living plants were cultivated at Knowsley, Lancashire, Lord Derby’s seat, but I am not aware that they ever flowered, the plate published in the “*Icones Plantarum*” being based upon Mr. Burke’s dried specimens, presented with his other botanical collections to Sir. W. Hooker, and now in the Herbarium of the Royal Gardens.

In 1874 H.E. Sir H. Barkly, the Governor of the Cape,
MAY 1ST, 1876.

obtained from Henkries, near the Orange River, two fine specimens of this plant. One unfortunately died, but the other reached Kew in perfect condition, having been carefully suspended in a wooden box without earth. Sir Henry Barkly remarks that plants of *Hoodia* as well as *Piarranthus* usually have a single tap-root with branchlets spreading out laterally at some depth, and that they often die when transplanted. The Kew plant appeared at first to be in excellent health, and after flowering in 1875 (for the first time, I believe, in Europe) made some growth, but at the beginning of the present year it rotted off at the crown without apparent cause.

DESCR. *Stems* numerous from the crown, erect or somewhat spreading, cylindric, slightly branched, leafless, younger portions with closely-set spirally-arranged tubercles, ultimately confluent into prominent longitudinal ridges; tubercles with a strong slightly-deflexed prickle swollen at the base. *Flowers* produced near the apex of the branches, 1-3-together, shortly petiolate. *Calyx* short, five-partite; segments acuminate, with minute glands interposed between each pair. *Corolla* with a very short tube; limb about four inches in diameter, at first slightly concave, ultimately nearly flat or even reflexed, obsoletely five-lobed; lobes abruptly apiculate, membranous, with pale radiating nerves, pale brownish flesh-coloured, glabrous. *Corona* double; exterior spreading, adnate to the staminal tube by five vertical septa, five-lobed, lobes oblong, concave, obscurely bilobed; interior of five narrowly oblong incumbent scales adnate to the septa and the base of the anthers. *Anthers* short, oblong, inappendiculate, incumbent on the stigma and half-immersed in it. *Stigma* flattened at the apex. *Pollen-masses* erect. *Follicles* in pairs, tapering to each end, smooth.—W. T. T. D.

Fig. 1, Reduced sketch of whole plant; 2, flowering-stem, *natural size*; 3, gynostemium from side; 4, gynostemium from above; 5, pollen-masses:—3-5 are magnified analyses from flowers of *Hoodia Curreri* preserved in spirit.



TAB. 5820.

HOYA AUSTRALIS.

Australian Hoya.

Nat. Ord. APOCYNÆÆ.—GYNANDRIA PENTANDRIA.

Gen. Char. (*Vide supra*, TAB. 5272).

HOYA *Australis*; glabra, foliis breviter petiolatis ovatis obovatis v. suborbiculatis obtusis v. breviter acuminatis basi rotundatis v. subcordatis, floribus umbellatis, pedunculis petiolos subæquantibus, corolla late 5-loba glabra marginibus planis papillois, corona segmentis in laminam concavam horizontaliter patentem dilatatis margine exteriori obtuso interiore acuminato incurvo dorso bicarinato.

HOYA *Australis*, Br. Traill, in *Trans. Hort. Soc.*, vol. vii. p. 28. Benth. *Fl. Austral.*, vol. iv. p. 346.

H. bicarinata, A. Gray, in *Proc. Amer. Acad. Sc.*, vol. v. p. 335.

H. Dalrympliana, F. Muell, *Rep. Burdek Expt.*, p. 16.

A handsome, free-growing species of *Hoya*, first detected a century ago by Sir Joseph Banks during Captain Cook's voyage on the Endeavour River in Queensland, and afterwards collected by Brown, Backhouse, Mueller, and others, at Moreton Bay, Rockhampton, the Clarence River, and elsewhere in New South Wales and Queensland. It is also a native of the Fiji and Samoan groups. It was introduced into this country by the late James Backhouse, who collected it on the banks of the Brisbane, and who sent flowering specimens to Kew in 1863. The specimen from which the accompanying drawing was made, was presented to the Royal Gardens by George Macleay, Esq., in 1864. It flowers annually in the month of October, and diffuses a rich honeysuckle-like scent.

FEBRUARY 1ST, 1870.

DESCR. A succulent glabrous twiner or epiphyte. *Leaves* very dark green, two to three inches long, very coriaceous and fleshy, on short petioles, ovate obovate or nearly orbicular, obtuse or shortly acuminate, rounded or rarely almost cordate at the base. *Flowers* white, tinged with pink in the centre, in simple umbels, peduncles interpetiolar, rarely exceeding the petioles; pedicels pubescent, slender, half to one inch long, or even more. *Calyx-segments* about one line long. *Corolla* spreading to half an inch diameter, broadly five-lobed, the upper surface nearly smooth and glabrous, except towards the edges, which are slightly papillose and not reflexed. *Corona-segments* expanded into concave (at first almost cup-shaped) horizontally spreading laminæ, very obtuse on the outer margin, the inner margin acuminate and incurved, the back prominently two-keeled.—*G. Benth.*

Fig. 1, Flower; 2, corona removed:—*both magnified.*



HOYA BELLA.

Beautiful Hoya.

Nat. Ord. ASCLEPIADEÆ.—PENTANDRIA DIGYNIA.

Gen. Char. (Vide supra, TAB 4397.)

HOYA *bella*; suffruticosa diffusa (vix scandens) copiose foliosa, foliis parvis ovatis acutis brevissime petiolatis uninerviis supra intense viridibus subtus pallidis, umbellis lateralibus brevi-pedunculatis, calycis foliolis ellipticis, corollæ rotata acute 5-angulato-lobata, coronæ stamineæ foliolis ovatis truncatis supra concavis purpureis subtus pallidis.

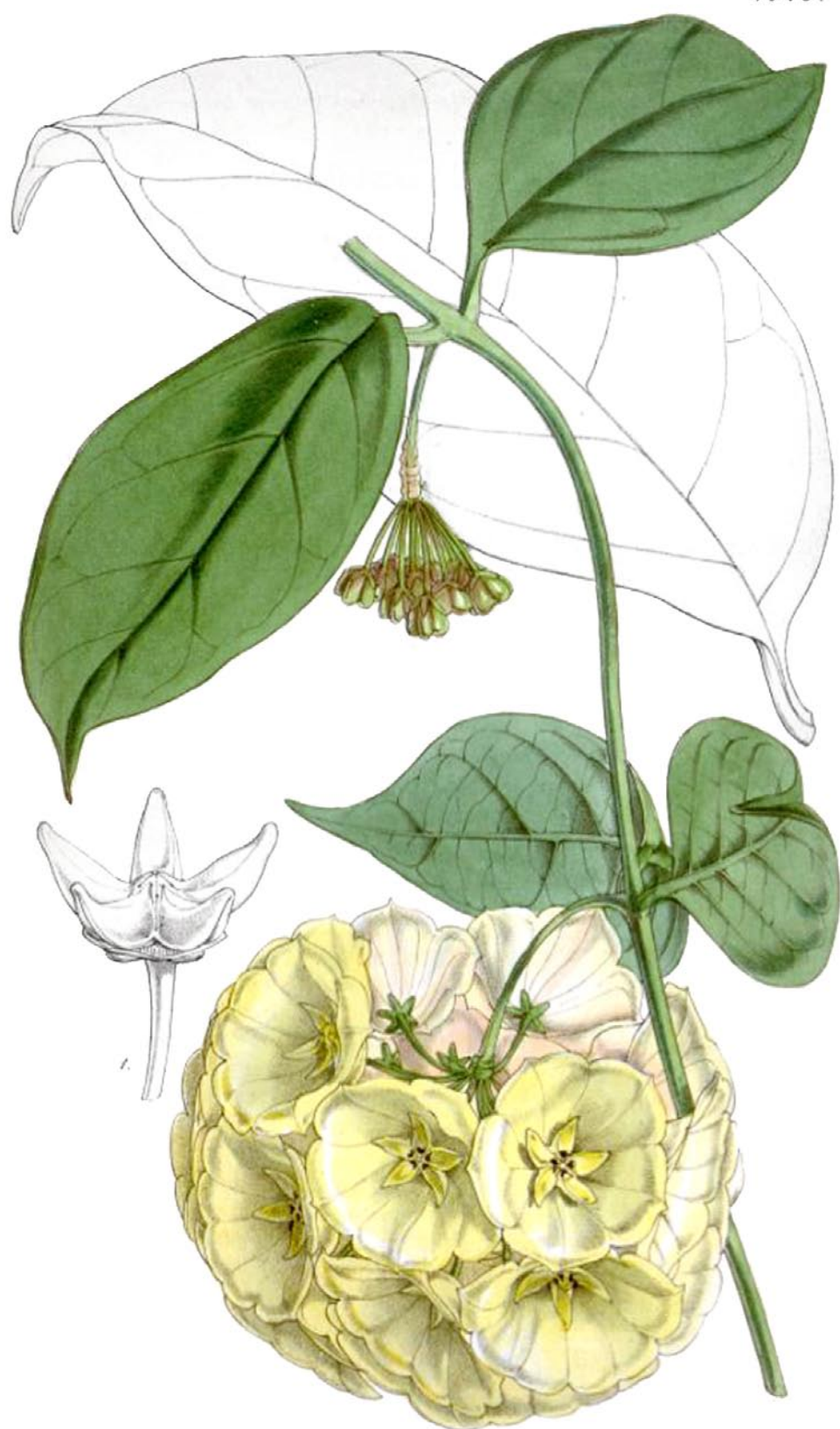
The most lovely of all the *Hoyas*, to which a figure (as in the case of most flowers with much white) is little calculated to do justice. It cannot be called a climber, but the branches are diffuse, copiously leafy, so that the leaves (unlike those in *H. carnosa*) form a dark back-ground to the delicate umbels of flowers, with leaves in shape resembling those of a Myrtle, and flowers more lively and differently formed from those of *Hoya carnosa*, and most deliciously scented. The corolla is a purer white, and the corona a deeper purple: resembling an amethyst set in frosted silver. It is a native of the Taung Kola mountain, Moulmein, and has been imported, through their collector, Mr. Thomas Lobb, by Messrs. Veitch and Sons of Exeter, where treated like an *Æschynanthus*, or an epiphyte, we had the pleasure of seeing this “first gem of the air” blossoming in great perfection, in June, 1848. It is a free bloomer, and the flowers last many days in high beauty.

DESCR. *Stems* branching, weak, but copiously leafy; leaves opposite, scarcely so big as those of the large-leaved Myrtle, and nearly of the same shape, ovate, but fleshy, one-nerved, dark green above, paler beneath. *Peduncles* lateral, about as long as the leaf, each bearing a corymb of from eight to ten flowers. *Calyx* a little downy, of five elliptical, spreading sepals. *Corolla* rotate, convex, nearly white, waxy, with five acute angles rather than

lobes. Alternating with these angles, and occupying the centre of the flower, are the five leaflets of the *staminal crown*, ovate or rather cymbiform, concave and deep-purple on the upper face, pale below.

Fig. 1. Calyx and staminal crown:—*magnified*.





HOYA CAMPANULATA.

Bell-flowered Hoya.

Nat. Ord. ASCLEPIADEÆ.—PENTANDRIA DIGYNIA.

Gen. Char. (*Vide supra*, TAB 4397.)

HOYA *campanulata*; volubilis, glabra, foliis breviter petiolatis oblongis acutis subcoriaceis penninerviis, pedunculis petiolo longioribus, umbella multiflora, corolla late campanulata 5-lobata lobis brevissimis obtusissimis.

HOYA *campanulata*. Blume, *Bijdr.* p.1064. *Lind. Bot. Reg.* 1847, t. 54.

PHYSOSTELMA ? *campanulata*. Decaisne, in *De Cand. Prodr.* v. 8. p. 632. Walp. *Repert. Bot.* p. 493.

CYSTIDIANTHUS *campanulatus*. Harsk. *Cat. Pl. in Hort. Bot. Bogor.* p. 126.

A very remarkable stove-plant, native of copses in the mountainous districts of Java, detected by Blume, and imported into England by Messrs. Veitch and Sons (to whom we are indebted for living plants) through the medium of their collector, Mr. Thomas Lobb. We agree with Dr. Lindley that, remarkable as is the form of the corolla, there is nothing to justify its separation from *Hoya*; and it does not accord with *Physostelma* of Dr. Wight, to which Professor Decaisne has doubtfully referred it. If distinct from *Hoya*, it should bear Harskal's name above quoted. Blume makes a section of it: "*Corolla campanulata, angulato-5-plicata, coronæ foliolis angulo exteriori adscendentibus integerrimis.*" It bears its curious, somewhat waxy and pale buff-coloured flowers in August.

DESCR. A long-stemmed twining *shrub*, with slender *branches*. *Leaves* opposite, oval-oblong, acuminate, scarcely coriaceous, penninerved. *Petiole* nearly half an inch long. *Peduncle* slender, drooping, as is the large capitate *umbel*. *Pedicels* very slender. *Calyx* small, of five lanceolate *sepals*. *Corolla* large, an inch and a quarter to an inch and a half in diameter, between membranaceous and fleshy, somewhat waxy, buff-coloured, broadly and shallow-campanulate, plicate, the margin cut into

five, broad, obtuse, very short lobes. *Lobes* of the *staminal crown* acuminate, slightly ascending. *W. J. H.*

CULT. A climbing plant, which, as regards its habit, may be considered a thin-leaved *Hoya*. Being a native of Java, it requires to be kept in a warm and moist stove. A mixture of light loam and peat will suit it, and during its season of rest care must be taken that it is not saturated with water. Its pendulous umbels of flowers are shown most to advantage by training the plant up a rafter, or something similar, in a nearly horizontal direction. It is easily propagated by cuttings. *J. S.*

Fig. 1. Staminal crown:—*magnified.*



TAB. 4347.

HOYA CINNAMOMIFOLIA.

Cinnamon-leaved Hoya.

Nat. Ord. ASCLEPIADEÆ.—PENTANDRIA DIGYNIA.

Gen. Char. Calyx brevis, pentaphyllus. Corolla rotata plus minusve alte 5-fida, laciniis planis v. reflexis æstivatione valvata. Corona staminea 5-phylla, foliolis depressis patentibus v. plus minusve gynostegio verticaliter adnatis carnosus angulo interiore in dentem antheræ incumbentem producto. Gynostegium breve. Antheræ membrana terminate. Massæ pollinis basi affixa, oblongæ, compressæ, conniventes, sæpius margine pellucidæ. Stigma muticum cum papilla media obtusa v. subapiculatum. Folliculi læves v. appendiculis instructi, subpolypteri. Semina comosa.—Frutices v. suffrutices Indici v. Moluccani rarissime Africani, volubiles, scandentes aut decumbentes, foliis carnosis v. coriaceis v. membranaceis, floribus umbellatis, umbellis extra-axillaribus sæpius multifloris. D.C.

HOYA *cinnamomifolia*; glaberrima, volubilis, caulibus ramisque teretibus, foliis carnosio-coriaceis crassis ovatis acuminatis utrinque 5-nerviis, nervis superne prominentibus supra petiolum calloso-glandulosis, pedunculis brevibus, umbellis compactis multifloris, corolla glabra pallide flava, corona stam. foliolis ovatis acutis atro-sanguineis supra planis medio linea elevata.

To Messrs. Veitch and Sons, again, we are indebted for the introduction to our stoves of this new and handsome species of *Hoya*, from Java, whence it was sent by Mr. Thos. Lobb. It flowered in July, 1847. It belongs to the same group of the genus with *Hoya Pottsii*, figured in our Magazine, Tab. 3425; but it has much more showy flowers, and the nervation of the leaves is considerably different.

DESCR. *Stem* long, branched, twining, terete, glabrous, here and there sending out short roots from various portions of its length. *Leaves* opposite, on short, very thick petioles (which have a callosity on the top), large, ovate, slightly peltate, acuminate, thick, between coriaceous and fleshy, the margins recurved, five-nerved; the three central nerves very conspicuous both above and below, extending nearly to the summit, the lateral ones less evident. *Peduncle* not half the length of the leaf, bearing a dense hemispherical *umbel of flowers*. *Flowers* large, rather showy from the effect of the different colour of the *staminal crown*.

JANUARY 1ST, 1848.

Corolla pale yellow-green, rotate, the segments broadly ovate, acute. *Leaflets of the staminal crown* of a deep purple blood-colour, ovate, acute, thick, fleshy, nearly plane above, with a central elevated line.



HOYA CORIACEA.

Coriaceous-leaved Hoya.

Nat. Ord. ASCLEPIADEÆ.—PENTANDRIA DIGYNIA.

Gen. Char. (*Vide supra*, TAB 4347.)

HOYA coriacea; volubilis glabra, foliis coriaceis ellipticis acutis v. acuminatis basi rotundatis v. obsolete emarginatis subvenosis (penniveniis) supra petiolum calloso-glandulosis, umbellis longissime pedunculatis multifloris, corollæ intus sericeo-velutinæ laciniis triangulari-ovatis acutis, coronæ stamineæ foliolis supra convexis, angulo exteriori obtusiusculo subreclinato.

HOYA coriacea. *Bl. Bijdr. Flor. Ned. Ind.* p. 1063. et in *Rumphia*, vol. 4. t. 187. *De Cand. Prodr.* 8. p. 638. *Bl. Mus. Bot. Lugd. Bat.* 1. p. 44.

Discovered by Dr. Blume in mountain woods on the western side of Java. Mr. Thomas Lobb detected it in the same island, on Mount Salak, and transmitted living plants to the rich nursery of Messrs. Veitch at Exeter, in whose collection this handsome species first blossomed in August 1849. It is a climber, and requires the heat of the stove.

DESCR. Everywhere glabrous. *Stem* branched, twining, terete; young branches green. *Leaves* opposite, on short thick petioles, which are glandular above at the setting on of the blade, which latter is almost exactly elliptical, or approaching to ovate, acute, between coriaceous and fleshy, acute or shortly acuminate, costate, penniveined, the veins rather indistinct. *Peduncles* sub-axillary, solitary, terete, longer than the leaf, pendent, bearing a large *umbel* of numerous *flowers*, brown in the state of the bud, much paler when fully expanded. *Pedicel* very obscurely villous. *Calycine segments* subulate, much shorter than the corolla. *Corolla* rather large, glabrous and glossy externally, within pale tawny and downy: the lobes triangular, acute, the sides a little reflexed. *Staminal crown* white, with a dark brown eye; leaflets ovate, gibbous at the base, obtuse, the apex a little curved down. *W. J. H.*

CULT. The genus *Hoya* consists of between forty and fifty
JUNE 1ST, 1850.

described species, which, with a few exceptions, are natives of tropical India and the Malayan Islands. They are soft-wooded, suffruticose, twining plants, of an epiphytal habit; their leaves are usually thick and coriaceous. Most of the species inhabit moist woods, though some grow in exposed places, subject to great drought during the tropical dry season. This plant is a native of moist woods in Java, and is described as a strong-growing species. It requires a temperature suitable for tropical Orchids, but less moisture, especially during winter. It is adapted for growing against a back wall or for training up rafters; or it may be coiled round a trellis fixed to a pot. Light peat soil, mixed with a portion of turfy loam, is suitable, provided it be not such as will become stagnant by an excess of water. To prevent this, the pot should be well drained with potsherds, and pieces of charcoal mixed with the soil. It is propagated by cuttings placed in heat.

Fig. 1. Calyx and ovaries. 2. Flower:—*magnjied*.



TAB. 4969.

HOYA CORONARIA.

Coronated Hoya.

Nat. Ord. ASCLEPIADEÆ.—PENTANDRIA DIGYNIA.

Gen. Char. (*Vide supra*, TAB 4347.)

HOYA *coronaria*, Bl.; caule scandente, ramis robustis, petiolis pedunculis calycibus extus foliisque subtus pilis curvatis magis minusve velutinis, foliis sublonge petiolatis crasse carnosis apiculatis basi obtusis obsolete transversim venosis marginibus subrecurvis, umbellis pedunculatis multifloris, corolla majusculè laciniis triangularibus extus pubescentibus intus glabris, coronæ stamineæ foliolis angulo exteriorè rotundatis obtusis.

HOYA *coronaria*. Bl. *Bijdr. Fl. Ned. Ind.* p. 1063 (*excl. syn. Herb. Amb.*), *Rumphia*, vol. 4. p. 31. t. 183. f. 2, et t. 184. f. 2.

HOYA *grandiflora*. Bl. *MSS. et Decaisne in De Cand. Prodr.* v. 8. p. 635.

HOYA *velutina*. Wight, *Contr. Bot. of India*, p. 35. Wall. *Cat. n.* 8150.

Aroy *kilampahan*, Sundaicè.

This fine *Hoya* was introduced to our stoves by the Messrs. Veitch, of the Exeter and Chelsea Exotic Nurseries, from Java, through their collector, Mr. Thomas Lobb, and it proves to be the *Hoya coronaria* figured and described by Blume, l. c. It is, next to *Hoya imperialis*, Lindl., undoubtedly the largest-flowered species of the genus yet cultivated in our gardens. The colour of the corolla, though exhibiting no bright or gay tint, has nothing of the lurid character of the species last mentioned; it is a pale sulphur-yellow, prettily relieved by five red spots immediately around and at the base of the *corona staminea*. Blume appears to have been the first to discover this plant in moist woods and shady banks of Western Java, and was then disposed to refer it to the “Corona Ariadnes punicea” of Rumphius, under the name of *H. grandiflora*, in which Decaisne has followed him in *De Cand. Prodr.*; but Blume afterwards corrected himself, and gave of this species a good figure and description under the name we here adopt. It is not however peculiar to Java: Dr. Wallich detected it in Silhet. The milky juice of the leaves,

MARCH 1ST, 1857.

Blume observes, is acrid, and excites nausea; nevertheless the mountain tribes eat the plant uncooked, mixed with capsicum and salt, and consider that it assists digestion. Our drawing was made from Messrs. Veitch's plant in November, 1856.

DESCR. Suffruticose climber; *branches* rather thick, terete, downy, green. *Leaves* opposite, distant, petiolate, elliptical, apiculate, thick, fleshy, pale green, three to five inches long, obtuse at the base, the margin a little recurved, penninerved; *nerves* obscure, nearly horizontal: above glabrous, the costa on the upper side, and the whole leaf beneath, as well as the thick, terete *petiole*, about an inch long, are subvelutinous, the hairs (and wherever they exist on the plant) curved. *Peduncle* arising from between the pairs of leaves, an inch or more long, downy, bearing an *umbel* of many *flowers*: *pedicels* (which are longer than the peduncle) downy. *Calyx* of five, downy, ovate, rather acute lobes. *Corolla* rotate: the *lobes* triangular, acute, moderately carnose, pale sulphur-yellow, with five small red spots at the base of the tube. *Staminal crown* large, conspicuous, of five blunt lobes or rays. Blume describes the fruit as "*Folliculus cucumerinus*, 8–10-poll., cylindricus, aliquantum curvatus, sulco longitudinali exaratus,—textura crassa spongiosa, sulco longitudinali tandem dehiscens."

Fig. 1. Portion of a pedicel, with the corona staminea:—*magnified*.



HOYA CUMINGIANA.

Mr. Cuming's Hoya.

Nat. Ord. ASCLEPIADEÆ.—PENTANDRIA DIGYNIA.

Gen. Char. Calyx brevis, pentaphyllus, plus minusve alte quinquefida, laciniis planis v. reflexis, estivatione valvata. Corona staminea 5-phylla; foliolis depressis patentibus, vel plus minusve gynostegio verticaliter adnatis carnosis angulo interiore in dentem antheræ incumbentem producto. Gynostegium breve. Antheræ membrana terminatæ. Massa pollinis basi affixæ, oblongæ, compressæ, conniventes, sæpius margine pellucidæ. Stigma muticum, cum papilla media obtusa, v. subapiculatum. Folliculi læves v. appendiculis instructi, subpolypteri. Semina comosa.—Frutices vel suffrutices Indici v. Moluccani, rarissime Africani, volubiles, scandentes aut decumbentes; foliis carnosis v. coriaceis v. membranaceis; floribus umbellatis; umbellis extra-axillaribus sæpius multifloris. Dcne. in De Cand. Prodr.

HOYA *Cumingiana*; scandens glabra, ramis foliosis, foliis ovato-cordatis obtusis subcarnosis subtus venosis papillo-velutinis brevi-petiolatis, pedunculis plurifloris brevibus pedicellisque glabris, corolla laciniis triangularibus acutis reflexis extrorsum glabris, introrsum papillois, coronæ staminæ foliolis ovatis supra convexis, marginibus revolutis, angulo interiore porrecto, stigmati apiculato incumbente. Dcne. in De Cand.

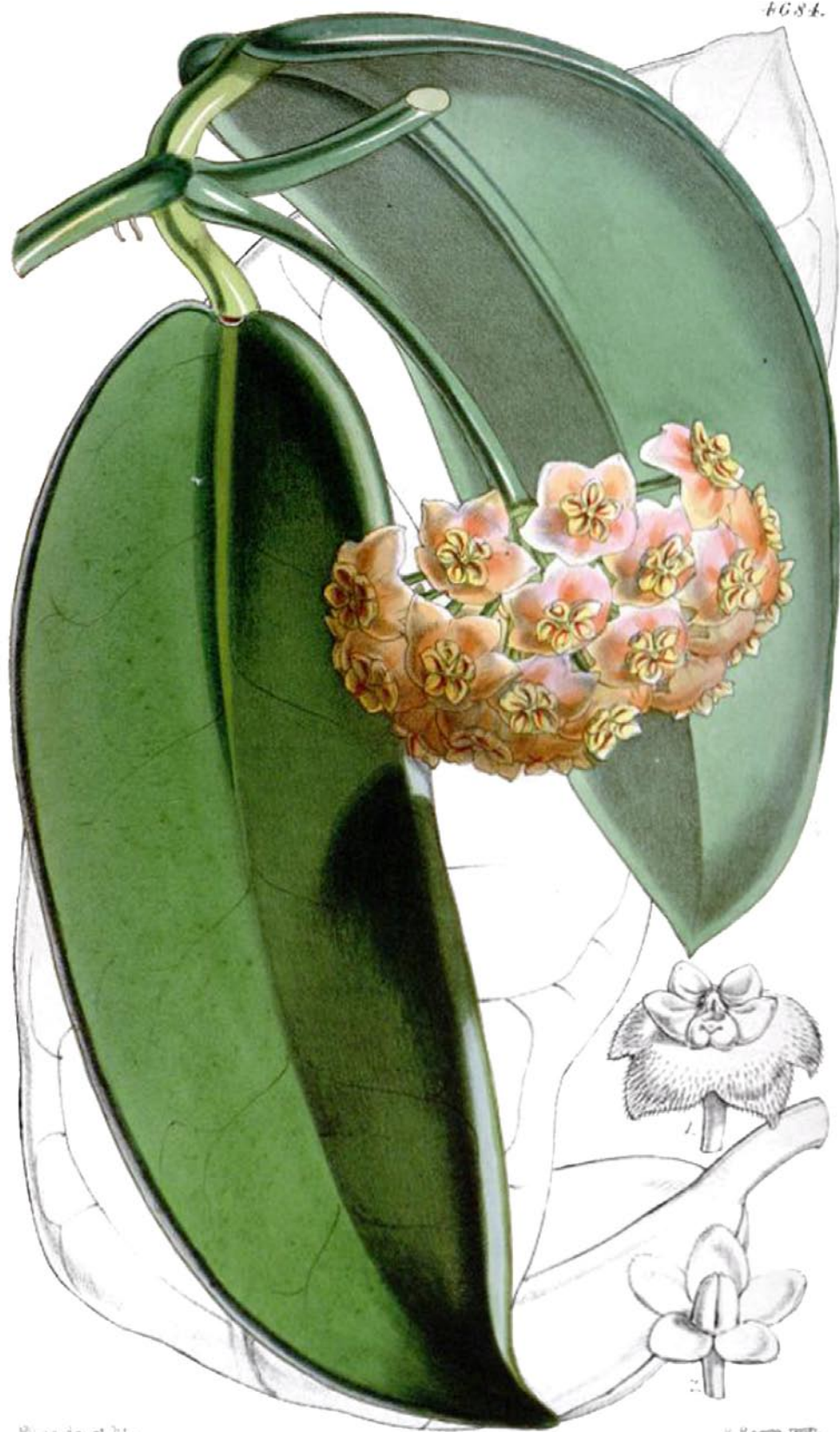
HOYA *Cumingiana*. Dcne. in De Cand. Prodr. v. 8. p. 636.

Flowering specimens of the pretty *Hoya* here figured were communicated to us by Mr. Lowe, of the Clapton Nursery, who received the plant from the Eastern Archipelago, gathered either in Singapore or in Borneo. It probably is a native of both those islands, and of the Malayan Islands generally, being unquestionably the *H. Cumingiana* of Decaisne in De Candolle's 'Prodromus,' from the Philippine Islands (n. 1480 of Mr. Cuming's distributed specimens). There are, indeed, some trifling discrepancies between the character in the 'Prodromus' and our specimens, almost wholly, however, depending on the more or less pubescent character, a circumstance extremely liable to vary.

DESCR. A climber, with terete, green *branches*, slightly pubescent, as are the very short *petioles*, the *peduncles*, and *calyx*. *Leaves* coriaceous, elliptical-ovate, cordate at the base, suddenly

acute at the point, very indistinctly penninerved. *Peduncles* a little supra-axillary, three-quarters of an inch long, bearing an *umbel* of *flowers*, which are drooping: *pedicels* an inch long, slender. *Calyx* quinquepartite, the *segments* oblong-ovate, obtuse. *Flowers* tawny-yellow. *Corolla* with its five obtuse lobes reflexed. *Staminal crown* purple in the centre.

Fig. 1. Flower. 2. Calyx and pistils:—*magnified*.



TAB. 4684.

HOYA FRATERNA.

Thick-leaved Hoya.

Nat. Ord. ASCLEPIADEÆ.—PENTANDRIA DIGYNIA.

Gen. Char. (*Vide supra*, TAB 4347.)

HOYA (*Physostemma*) *fraterna*; foliis amplis ellipticis crassissime coriaceis acutis basi subcordatis et calloso-glandulosis obscure remote penninerviis margine recurvis, petiolo costaque subtus præcipue crassis, pedunculo folio 3–4-plo brevior, umbella multiflora compacta, sepalis ovalibus obtusis concavis, corollæ rotatæ lobis deltoideis patenti-recurvis sericeo-velutinis, coronæ stamineæ foliolis brevi-ovatis apice recto obtuso.

HOYA *fraterna*. *Blume, Mus. Bot. Lugd. Bat.* p. 44.

A very fine new and very distinct species of *Hoya*, first detected in Java by Blume and since by Mr. Thomas Lobb, and sent by him to his employer Mr. Veitch, in whose stove at Exeter it has grown very vigorously and yielded its very handsome flowers during a great part of the summer and autumn. Some of the leaves measure a foot in length: our coloured figure is taken from a portion of the plant yielding smaller foliage; but these leaves are remarkable no less for their great size than they are for their firmness and thickness, and the very indistinct remote pinnated nerves, scarcely seen except when the leaf is held between the eye and the light, or when the leaves are dried for the herbarium; then the shrinking of the parenchyma brings the veins more distinctly into view, and shows them to be pinnated, anastomosing, and slender. The petioles and costa beneath are peculiarly thick. The upper side of the corolla, disc excepted, is downy, or between silky and velvety, and of a pale yellowish buff-colour, but five stains or spots are seen radiating from the centre towards the sinuses, which are always wet and clammy, which clamminess appears to be due to a flow of honey from beneath each of the leaves of the crown or nectary, and give a rich brown tone of colour to the whole umbel of flowers. It was named *fraterna* by Blume on

DECEMBER 1ST, 1852.

account of its affinity to *H. coriacea*, from which it is however abundantly distinct, as will be seen by a reference to the latter plant figured at our Tab. 4518.

DESCR. A *climber* with terete *stems* and *branches*, rooting near the insertion of the petioles, bearing opposite *leaves*, on rather short but very thick petioles; varying from six inches to a foot in length, singularly thick, and firmly fleshy, subcoriaceous, elliptical, very glabrous and even, the margins recurved, the apex rather acute, the base emarginate or subcordate, dark green and glossy above, pale and opaque beneath, where the mid-rib is very broad and prominent; lateral veins scarcely at all visible except the leaf be held between the eye and the light, when they are seen to be pinnated, distant, slender, anastomosing towards the margin. *Peduncle* much shorter than the leaves, moderately stout, thickened at the base, bearing at the apex a dense *umbel* of rather large, brownish-red *flowers*. *Sepals* five, oval, concave. *Corolla* rotate, pale buff, with five red-brown blotches, five-lobed, the lobes triangular, silky, reflexed. *Leaflets* of the corona pale buff, rotundato-ovate, thick, fleshy, concave above with a blood-red spot at the base, grooved beneath. *Ovaries* two, oblong.

Fig. 1. Calyx and ovaries. 2. Flower:—*magnified*.



M. S. del. J. N. P. lith.

Vincent Brooks Day & Son lith.

TAB. 6877.

HOYA GRIFFITHII.

Native of Eastern Bengal.

Nat. Ord. ASCLEPIADEÆ.—Tribe MARSDENIÆ.

Genus HOYA, *Brown*; (*Benth. et Hook. f. Gen. Pl.* vol. ii. p. 776.)

HOYA (Euhoya) *Griffithii*; frutex glaberrimus, scandens, ramis elongatis flexuosis teretibus, foliis 6–9-pollicaribus per paria distantibus breviter petiolatis oblongo-lanceolatis oblanceolatisve acutis acuminatisve crasse coriaceis, costa crassiuscula, nervis tenuissimis patentibus obscuris, pedunculis axillaribus crassis elongatis, umbellis multifloris, pedicellis pollicaribus crassis, floribus $1\frac{1}{4}$ -poll. diam., sepalis lineari-oblongis obtusis crassis, corollæ sordide rosæ lobis crassis triangulari-ovatis dorso concavis intus glabris, coronæ processibus magna ambitu hemisphericis faciebus planis in spinas obtusas stigma superantes productis.

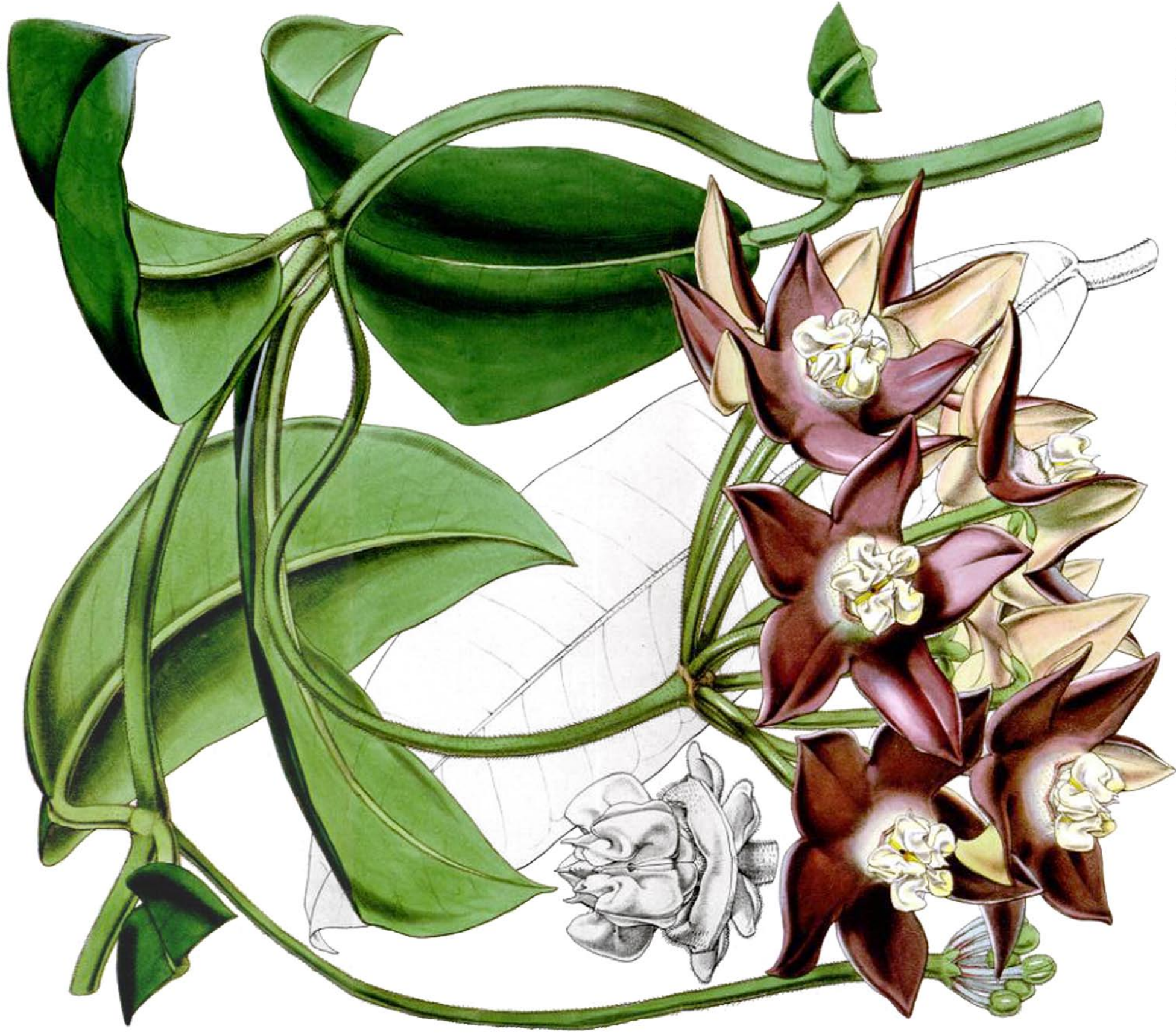
H. Griffithii, *Hook. f. Fl. Brit. Ind.* vol. iv. p. 59; *N. E. Brown in Gard. Chron.* 1885, vol. ii. p. 334, fig. 74.

This noble species of Hoya was discovered by the indefatigable Indian botanist and collector, Dr. W. Griffith, in the Khasia Mountains of Eastern Bengal, between Assam and Silhet, upwards of half a century ago; and it was again gathered there by Dr. Thomson and myself in 1850, near Nowgong, at an elevation between 2000 and 4000 feet above the sea. It is a near ally of the still nobler *H. imperialis*, Lindl., of Malacca, figured at Tab. 4397 of this work. A still nearer ally is the beautiful *H. coronaria*, Blume, a hitherto unfigured species of Malacca and Penang, which has pubescent leaves and flowers. Flowering specimens of *H. Griffithii* were sent to Kew by Mr. Swan, of Oakley, Fallowfield, near Manchester, in July last, with the information that the plant had been at Oakley about ten years. Mr. Swan states that it came from Northern India, and was originally sent to his employer, W. Leach, Esq. It is, of course, a stove plant, and as such well worthy of cultivation.

DESCR. A tall quite glabrous climber. *Stem* slender, terete, flexuous. Leaves in distant pairs, four to ten inches long, very shortly petioled, elliptic- or oblong-lanceolate
MAY 1st, 1886.

or oblanceolate, acute or acuminate, thickly coriaceous, bright green above, paler beneath; midrib rather stout; nerves slender, very obscure, horizontally spreading and loosely anastomosing; petiole stout, one-sixth to one-third of an inch long. *Flowers* one to one and a half inch in diameter, numerous, umbelled on a stout axillary peduncle two to three inches long; pedicels long, stout, one to one and a half inches long. *Sepals* much larger in proportion to the corolla than usual in the genus, oblong, obtuse, thickly coriaceous. *Corolla* quite glabrous, pale rather dull rose-red (the colour of blotting-paper externally) with yellowish edges; paler and yellowish within, with three faint pink stripes on each segment. *Segments* triangular-ovate, acute, thickly coriaceous, concave behind. *Corona* large, with five hemispheric lobes; these lobes have the convex surface downwards and longitudinally cleft, the flat surface upwards, and produced inwards into a short ascending spine which reaches and rises above the stigma.—*J. D. H.*

Fig. 1, Calyx and unopened corolla; 2, corona and base of corolla; 3, pollen-masses:—*all enlarged*,



HOYA IMPERIALIS.

Imperial Hoya.

Nat. Ord. ASCLEPIADEÆ.—PENTANDRIA DIGYNIA.

Gen. Char. Calyx brevis pentaphyllus. Corolla rotata plus minusve alte 5-fida, laciniis planis v. reflexis, estivatione valvata. Corona staminea 5-phylla, foliolis depressis patentibus v. plus minusve gynostegio verticaliter adnatis, carnosis angulo interiore in dentem antheræ incumbentem producto. Gynostegium breve. Antheræ membrana terminatæ. Massæ pollinis basi affixæ, oblongæ, compressæ, conniventes, sæpius margine pellucidæ. Stigma muticum cum papilla media obtusa v. subapiculatum. Folliculi læves v. appendiculis instructi, subpolypteri. Semina comosa.—Frutices v. suffrutices Indici v. Moluccani, rarissime Africani, volubiles, scandentes aut decumbentes, foliis carnosis v. coriaceis v. membranaceis, floribus umbellatis, umbellis extra-axillaribus sæpius multiforis. Dene.

HOYA *imperialis*; volubilis, ramis petiolis pedicellisque pubescentibus, foliis (spithamæis et ultra) obovato-lanceolatis coriaceis brevissime acuminatis subobscure parallelim venosis, pedunculo foliis longiore flexuoso-pendulo, umbella pluriflora, floribus maximis purpureo-fuscis nitidis, corollæ lobis cordato-triangularibus marginibus axillas versus præcipue reflexis fauce elevata libera, coronæ stamineæ albæ foliolis in medio arcte approximatis compressis carnosis bilobis lobo exteriori crasso dorso plano, interiore dentiformi lobum ext. æquante.

HOYA *imperialis*. Lindl. Bot. Reg. 1846, sub. fol. 68.

HOYA Sussuela. Roxb. Fl. Ind. v. 2. p. 31 ?

Dr. Lindley does not say too much of this plant when he remarks, in the place above quoted, "this is the most noble climbing plant we have ever seen;" and this was spoken of the dried specimens we believe, aided by flowers preserved in spirits. With greater truth may it be said of the living plant, now that we have had the pleasure to see it exhibited in full flower at the Horticultural Fête in the Regent's Park Gardens (June, 1848), where it obtained the highest prize given for new plants, and again in the stove of the fortunate possessors of this rarity, Messrs. Lucombe, Pince, and Co., at their Exeter Nursery. A cluster of its flowers is indeed one of the most striking objects we have ever seen; the leaves too are large and handsome. It is a *Hoya* with glossy fleshy leaves of a deep purplish chestnut colour, having the expanded flowers full three inches in diameter! rendered more conspicuous by the ivory-white of the central column of fructification. It was detected in Borneo by H. Low, Jun., Esq., who sent living plants to the Clapton Nursery, where it was purchased by Messrs. Lucombe, Pince, and Co.

"*Hoya imperialis* requires a strong rich soil in order properly to bring out its numerous large thick flower-trusses, which are

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produced from different parts of its twining stem. We have used a compost of equal parts of loam, rotten leaves, and peat, with some *flakes* of dry *half-decayed* dung intermixed, and a liberal supply of sand and broken crocks blended with the whole. The plant which we exhibited was trained round a low circular trellis, not exceeding three feet in height, and independently of the expanded truss from which the drawing was made, there were several others in different stages upon it. We have also one planted in a corner of the stove, which is twining round a single wire over the path, and upon this there are trusses of flowers ready to expand, having ELEVEN flowers on each. This I think will be found to be the best method of treating it, for with its long pendant bunches of large flowers, overhead, it is a most striking object. Each individual flower lasts a very long time in bloom, and is highly fragrant in the evening and all the night.

“I send you herewith some of the dried juice of *Hoya imperialis*, it hardens almost directly after being taken from the plant, and flows so copiously from the wound that I cannot help thinking it may be found available for some useful purpose.”—*Pince*.

I think this will prove to be the *Asclepias Sussuela* of Roxburgh, from the Moluccas, who has erred in quoting Rumphius’ “*Sussuela*,” and whose specific name is consequently untenable. His character, brief as it is, sufficiently accords, and he describes the corolla as “nearly three inches in diameter.” It seems to be a free flowerer and fragrant.

DESCR. A *climber* of quick growth, with rounded, downy, dark green *branches*. *Leaves* opposite, on short, terete, thick, downy *footstalks*, from six to nine inches long, obovato-lanceolate, acuminate, coriaceous, thick, firm, slightly convex above, but even (not waved), with obscure, patent, rather distant, parallel *nerves*, dark green above, paler beneath, and downy on the *costa*. *Peduncle* extra-axillary, much longer than the leaves, terete, downy; flexuose and pendent, terminated by a very large umbel of from nine to fourteen fragrant flowers! each three inches in diameter. *Pedicels* downy. *Calyx* of five, downy, very obtuse, oval *sepals*. *Corolla* rotate, pale purplish, downy, within rich purple-brown, glossy, pale in the centre: *segments* spreading, cordato-triangular, the *faux* elevated, loose around the column. *Staminal crown* large, projecting ivory white, fleshy, glossy: *foli-oles* two-lobed; outer lobe large, oval, compressed, flattened on the back, rather obtuse; the inner forming a sharp erect tooth, as long as the outer lobe.

Fig.1. Flower, the segments of the corolla being removed:—*magnified*.



HOYA (OTOSTEMMA) LACUNOSA.

Furrowed Hoya.

Nat. Ord. ASCLEPIADEÆ.—PENTANDRIA DIGYNIA.

Gen. Char. (Vide supra, TAB 4347.)

HOYA (Otostemma) *lacunosa*; scandens radicans, foliis mediocribus carnosocoriaceis ellipticis basi apiceque acuminatis petiolatis obscure penninerviis nervis immersis, pedunculis solitariis interpetiolaribus, umbellis multifloris planis, laciniis calycinis ovatis marginibus carinaque denticulatis, corollæ rotatæ carnosæ velutino-villosæ lobis triangularibus demum reflexis, coronæ stamineæ foliolis navicularibus concavis.

HOYA *lacunosa*, Blume, *Bjdr.* p. 1063. *Dcne. in De Cand. Prodr.* v. 8. p. 638. Blume, *Rumphia*, v. 4. t. 184. f. 2.

OTOSTEMMA *lacunosum*. Blume, *Rumphia*, l. c. p. 30. *Mus. Bot. Lugd. Bat.* v. 1. p. 59. f. 11. *Walp. Annal. Bot. Syst.* v. 3. p. 65.

A native of the trunks of trees, not only in Java, but in other islands of the Indian Archipelago, according to Blume. In habit and mode of growth this species reminds one of the *Hoya Bella*, figured at our Tab. 4402; but it is much less elegant and attractive, and wants the pink eye which gives such effect to that species. The Indian Archipelago abounds in species of the genus once ranked under *Hoya*, and even by Blume himself; but this genus is now, by that author, divided into several genera; and to the present species he has, in the letterpress to his 'Rumphia' above quoted, but not on the plate, given the generic name of *Otostemma*.* "Ab *Hoya*," he says, "recedit dentibus

* "Calyx 5-partitus. *Corolla* rotata, quinquefida, laciniis revolutis. *Corona staminea* pentaphylla, gynostegio elevato adnata; foliolis navicularibus, carnosiss, divaricatis, supra concavis, angulo interiore in dentem antheram superantem producto, subtus appendice deorsum bidentata auctis. *Antheræ* stigmati incumbentes, apice simplices, acutæ. *Pollinia* basi affixa, erecta, approximata, linearia, compressa. *Stigmata* obsolete apiculata. *Folliculi* læves. *Semina* plurima, ad umbilicum carnosæ.—Herba *Archipelagi Indici, in arboribus radicans; foliis oppositis v. rariis verticillatis, carnosiss, glabris; umbellis longiuscule pedunculatis; floribus parvis, albidis.*" Blume.

coronæ stamineæ super antheras protractis, cujus foliola sub-
tus esulcata singula appendice bidentata sunt prædita, necnon
antheris simplicibus haud membrana terminatis;” and he adds,
“Alias quoque stirpes sub *Hoya* militantes ad hoc genus refer-
endas esseprobabile videtur; qua de re diligens florum explo-
ratio docebit.”—Not being aware of the minute differences at
the time our drawing was made (March, 1854), our artist’s at-
tention was not directed to them; and perhaps science will not
stiffer by considering *Otostemma* a group or section of *Hoya*, at
ally rate till we are better acquainted with its affinities. The
flowers are fragrant, which is a recommendation. We owe the
possession of the plant at Kew to Mr. Lowe, of Clapton.

DESCR. A climbing *shrub*, with green branches, two to three
feet in length; *branches* terete, throwing out *roots* from various
points, especially where the leaves are inserted. *Leaves* oppo-
site, elliptical, lanceolate, between coriaceous and fleshy, acumi-
nated, marked above with a depressed line or midrib, and with
a few horizontal depressed veins (whence the name, we pre-
sume, of *lacunosa*). *Petioles* short, thick. *Peduncles* inter-
petiolarly. generally shorter than the leaf, solitary, bearing a flat-
tened umbel of numerous *flowers*. *Pedicels* thickened upwards.
Calyx of five, ovate or elliptical, rounded *lobes*, denticulate on
the margins and keel. *Corolla* rotate, greenish-yellow, the five
lobes eventually reflexed, the inner surface clothed with a circle
of velvety hairs. *Staminal crown* of five, spreading, lanceolate
foliola, concave at the top and embossed in the centre.

Fig. 1. Leaf. 2. Flower. 3. Calyx and pistils:—magnified.



HOYA (OTOSTEMMA) LACUNOSA, var. *pallidiflora*.

Furrowed Hoya, pale-flowered var.

Nat. Ord. ASCLEPIADEÆ.—PENTANDRIA DIGYNIA.

Gen. Char. Calyx brevis, pentaphyllus. Corolla rotata, plus minusve alte 5-fida, laciniis planis vel reflexis, æstivatione valvata. Corona staminea 5-phylla; foliolis depressis, patentibus v. plus minusve gynostegio verticaliter adnatis, carnosis, angulo interiore in dentem antheræ incumbentem producto. Gynostegium breve. Antheræ membrana terminatæ. Masse pollinis basi affixæ, oblongæ, compressæ, conniventes, sæpius margine pellucidæ. Stigma muticum, cum papilla media obtusa v. subapiculatum. Folliculi læves v. appendiculis instructi, subpolypteri. Semina comosa.—Frutices vel suffrutices Indici vel Moluccani, rarissime Africani, volubiles, scandentes aut decumbentes; foliis carnosis vel coriaceis vel membranaceis; floribus umbellatis; umbellis extra-axillaribus, sæpius multifloris. Decne.

HOYA (*Otostemma*) *lacunosa*; scandens radicans, foliis mediocribus carnosocoriaceis ellipticis basi apiceque acuminatis petiolatis obscure penninerviis nervis immersis, pedunculis solitariis interpetiolaribus, umbellis multifloris planis, laciniis calycinis marginibus carinaque denticulatis, corollæ rotatæ carnosæ velutino-villosæ lobis triangularibus demum reflexis, coronæ stamineæ foliolis navicularibus concavis.

HOYA *lacunosa*, Blume, *Bijdr.* p. 1063. Decne. in *De Cand. Prodr.* v. 8. p. 638. Blume, *Rumphia*, v. 4. t. 184. f. 2. Hook. *Bot. Mag.* t. 4826.

OTOSTEMMA *lacunosum*, Blume, *Rumphia*, l. c. p. 30. Mus. Bot. Lugd. Bat. v. 1. p. 59. f. 11. Walp. *Annal. Bot. Syst.* v. 3. p. 65.

β. *pallidiflora*; foliis enervibus, floribus decoloratis. (TAB. NOSTR. 5272.)

A native of Java, and notwithstanding the obsolete nervation of the leaves (which latter are broader than usual at their base), and the almost colourless flowers, cannot otherwise be distinguished from the *Hoya lacunosa* of Blume, and our TAB. 4826, to which we refer for a more full description. Indeed, had it not been that the figure was engraved, and the plates coloured, before the close similarity was detected, we

should hardly have deemed the present variety worthy of having a place in this work, while our gardens abound so much in plants of greater interest.

Fig. 1. Inferior view of a flower. 2. Superior ditto:—*magnified*.



TAB. 6682.

HOYA LINEARIS.

Native of the Himalaya.

Nat. Ord. ASCLEPIADEÆ.—Tribe MARSDENIÆ.

Genus HOYA, Linn.; (*Benth. et Hook. f. Gen. Pl.* vol. ii. p. 776.)

HOYA *linearis*; plus minusve hirsuta, ramis elongatis gracillimis pendulis flaccidis simpliciusculis, foliis $1\frac{1}{2}$ –2-pollicaribus breviter petiolatis angustis teretibus dorso canaliculatis, umbellis terminalibus subsessilibus laxis multifloris, sepalis brevibus ovato-lanceolatis hirsutis, corolla alba convexa intus glabra v. papillosa, lobis brevibus obtusis, coronæ processibus stellatim patentibus.

H. *linearis*, Wall. in *Wight Contrib.* p. 37; *Cat.* 8155; *Don. Prodr. F. Nep.* p. 130; *Dcne. in DC. Prodr.* vol. viii. p. 637.

Var. *sikkimensis*; corolla intus glabra, coronæ processibus subcylindraceo-ovoideis obtusis. *Hook.f. in Fl. Brit. Ind.* vol. iv. p. 53 (*ined.*).

The genus *Hoya* attains its maximum in transgangetic India, and there are still many beautiful species to be imported, especially from Assam, Burma, and the Malay Peninsula and Islands. Westward the genus rapidly diminishes in number of species, and is confined to the hotter and damper valleys of the Himalaya. In the most recent examination of the Indian Hoyas (*Flora of British India, ined.*) there are described seventeen species from the country extending from Burma to Malacca; thirteen inhabit the Khasia Mountains and Assam; ten are found in Sikkim; four of the latter in Nepal, and only two of these enter Kumaon, which is the western as well as northern limit of the genus; five are known in the mountains of the Deccan Peninsula, and only two in Ceylon. By far the most gorgeous species are natives of Borneo and the Moluccas, from whence the allies and rivals of *H. imperialis*, namely *H. grandiflora*, Blume, *H. Ariadne*, *Don.*, *H. lutea*, *Dcne.*, are to be obtained.

H. linearis was founded by Wight on Wallich's Nepal
APRIL 1ST, 1883.

specimens. I have examined these in Wight's Herbarium, and find that the corolla is papillose within and its coronal lobes broader and flatter than in the Sikkim specimens; unfortunately, however, these flowers are detached from the leaves, and may probably belong to another species (*H. lanceolata*). On the other hand the form of the coronal processes is not so constant in some Hoyas, as that species can safely be founded on it alone; and I have therefore adopted the course of regarding the Sikkim plant as a variety of the Nepal one. I need not remind the reader that Sikkim and Nepal are coterminous provinces, with almost identical vegetation, and that it is extremely improbable, having regard to the distribution of Hoyas, that a strictly endemic species of it should exist in Nepal alone. The specimen figured flowered in Messrs. Veitch's establishment in October last.

DESCR. More or less hirsute with soft spreading hairs. *Stems* tufted, pendulous, very slender, flexuous, a foot long and upwards. *Leaves* one and a half to two inches long by one-eighth to one-sixth of an inch in diameter, shortly petioled, cylindric, subacute, deeply grooved beneath, dark green. *Flowers* in a sessile terminal lax umbel; pedicels one to one and a half inch long. *Calyx*-lobes small, hirsute, ovate-lanceolate. *Corolla* half an inch in diameter, white, recurved, glabrous within; lobes short, broad, obtuse. *Coronal processes* stellately spreading, obtuse, subcylindric, very pale pink.—*J. D. H.*

Fig. 1, Calyx; 2, corona viewed from above, and 3, from the side:—*all enlarged.*



(3425)

HOYA POTTSII. MR. POTTS'S HOYA.

Class and Order.

PENTANDRIA DIGYNIA.

(Nat. Ord.—ASCLEPIADEÆ.)

Generic Character.

Massæ Pollinis læves, 10, recto-conniventes. *Antheræ* membrana terminatæ. *Corona* staminea pentaphylla, foliolis depressis, angulo interiore producto in dentem antheræ incumbentem. *Cor.* rotata. *Br.*

Specific Character and Synonyms.

HOYA* *Pottsii*; foliis cordato-ovatis brevi-acuminatis supra trinerviis, corolla supra vix pubescente.

HOYA *Pottsii*. *Traill*, in *Hort. Trans.* v. 7. p. 25. t. 1.? *Loddiges*, *Bot. Cab.* t. 1609.

Cultivated in the stove of the Bot. Garden of Glasgow where it flowers in May. It is much to be regretted that Mr. TRAILL, in his otherwise valuable paper on the different species of HOYA, has not more precisely defined the characters between his HOYA *Pottsii* and H. *trinervis*. Our plant is undoubtedly the H. *Pottsii* of the Bot. Cabinet, but the colour of the flowers is different from that of Mr. TRAILL, and in this respect, as well as in some others, it agrees better with the *trinervis*, of which its author says, "It bears a great resemblance to H. *Pottsii*, from which, however, it may be principally distinguished by its larger and thinner leaves, the veins of which are more strongly marked, and also by the yellowish colour in the centre of the crown." May not the two be varieties of one and the same plant? In ours, the
old

* Named in honour of Mr. THOMAS HOY, gardener to His Grace the Duke of Northumberland.

old leaves at the base of the plant are much thicker than the upper ones, and have the nerves more obsolete. From *H. carnosa* the species is best known by its larger, broader, three-nerved leaves, and the almost entire absence of down upon the upper surface of the corolla. It wholly wants the bright red spots in the inside of the crown, and the smell certainly cannot be compared to that of a "rich plum-cake, or a combination of that of honey with the almond flavour of the Peruvian Heliotrope," (to which that of *H. carnosa* is likened by Sir J. E. SMITH,) but rather resembles that of strong and bad honey.

If we are correct in considering the plant to be the original *H. Pottsii*, it is a native of the vicinity of Macao, where a leaf was gathered by the zealous collector to the Horticultural Society, whose name it bears, and which, being given to Mr. SABINE, and planted, soon flourished. The *H. trinervis* was brought from China by Mr. JOHN DAMPER PARKS.

DESCR. *Stem* long, branched, twining, the extremities frequently leafless and rooting. *Leaves* ovato-cordate with a short acumen; when old, very thick, and between fleshy and coriaceous, convex below, and pale-green, with scarcely an appearance of nerves; above concave, deep-green, with one central and two lateral nerves, the middle one sometimes sending out very obscure lateral oblique ones, the margin slightly revolute. *Petioles* rounded, short, very thick; when old, clothed with a sort of pale-brown bark. *Peduncle* from the side of one of the petioles at its base, two inches long, bearing a compact almost globose *umbel* of flowers. *Calyx* with five short, broadly ovate teeth. *Corolla* rotate, of five broadly ovate, acute, very pale yellow-green lobes, quite glabrous below, above so slightly downy that the pubescence can only be seen by the assistance of a microscope. *Crown* of five large, depressed fleshy, ovate, spreading, white leaves, between which the colour is orange.



HOYA PURPUREO-FUSCA.

Brown purple-flowered Hoya.

Nat. Ord. ASCLEPIADEÆ.—PENTANDRIA MONOGYNIA.

Gen. Char. (*Vide supra*, TAB 4347.)

HOYA *purpureo-fusca*; glaberrima volubilis, caulibus ramisque teretibus radican-
cantibus, foliis carnosio-coriaceis crassis ovatis acutis utrinque 5-nerviis ad
petiolum crassum calloso-glandulosis, pedunculis folio brevioribus, umbis
hemisphericis compactis multifloris, corolla supra pubescenti-hirsuta cinereo-
fusca, coronæ stamineæ foliolis ovatis acutis purpureo-fuscis superne planis.

A native of Java, where it was detected and whence it was sent to Messrs. Veitch of the Nursery, Exeter, by his collector, Thomas Lobb, who describes it, as it really is, as a handsome climber, common in the woods at Panarang. Its nearest affinity is with *H. cinnamomifolia*, having the same kind of foliage, that is, with parallel nerves (not penninerved) and flowers of nearly the same size and shape, but the colour is extremely different in the two, and in this the corolla is pubescenti-hirsute; in which particular, and in the parallel nerves of the leaf, it approaches the *Hoya macrophylla*, Bl. Rumphia, t. 185; but in the latter the leaf is reticulated between the nerves, the staminal crown has the leaflets much more acuminate, and the colour of the flowers is quite different. It flowered copiously in Mr. Veitch's stove in September, 1849, when our drawing was made. The flowers are of a rich purplish-brown.

DESCR. A glabrous twining and branching *shrub*, everywhere (except the corolla) glabrous: *branches* terete, often throwing out short fibrous *roots*. *Leaves* opposite, on very thick, brownish petioles, four to five inches long, exactly ovate, acute, or shortly acuminate, thick, fleshy, five-nerved, the nerves all diverging from the base, and having a gland at the base where set on to the petiole. *Peduncles* axillary, shorter than the leaf, occasionally rooting, and bearing a dense many-flowered *umbel*. *Pedicels* slender. *Calyx* of five deep, almost subulate, segments.

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Corolla rotate, ashy-brown, pubescenti-hirsute above, cut into five roundish and shortly acuminate lobes. *Staminal crown* of five ovate, fleshy, rich purple-brown, acute leaflets, nearly plane at the top, convex below. *W. J. H.*

CULT. In habit and manner of growth, this agrees with the species figured at Tab. 4518. Coming from the same locality, it will succeed with the same kind of treatment. *J. S.*

Fig. 1. Flower:—magnified.

TAB. 5269.

HOYA SHEPHERDI.

Mr. Shepherd's Hoya.

Nat. Ord. ASCLEPIADEÆ.—PENTANDRIA DIGYNIA.

Gen. Char. (*Vide supra*, TAB 5148.)

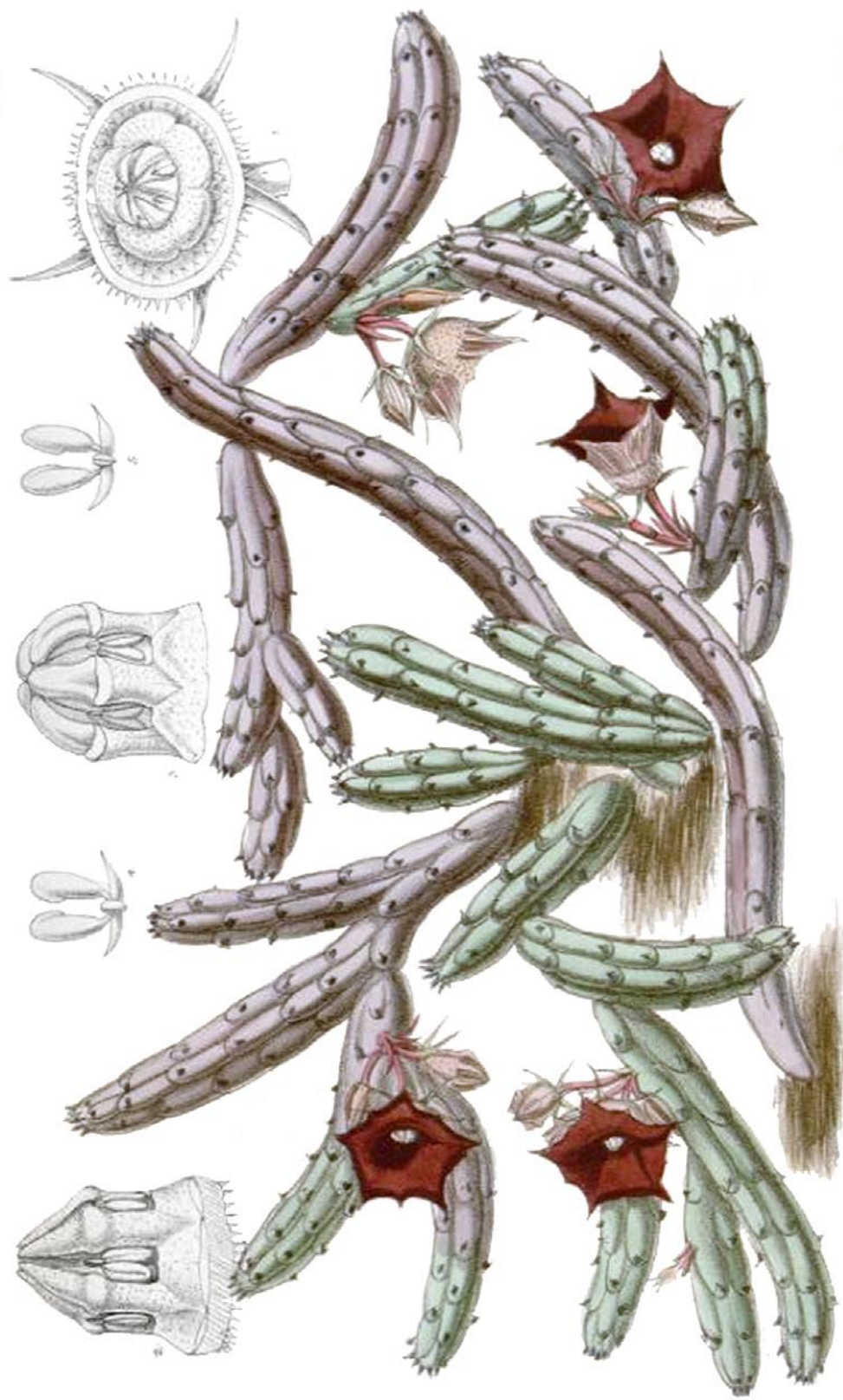
HOYA *Shepherdii*; scandens, caule tereti papilloso, foliis 6-uncialibus linearibus v. lineari-lanceolatis deflexis crasso-carnosis supra atro-viridibus canaliculatis subtus pallidioribus semiteretibus aveniis ad petiolum geniculatis, petiolis brevibus teretibus, pedunculis subaxillaribus clavatis, umbellis plurifloris albo-roseis, pedicellis clavatis, calycis lobis brevibus triangularibus, corollæ lobis præcipue ad marginem villosis, coronæ foliolis erecto-patentibus.

We owe the possession of this remarkable species of *Hoya* to Mr. Short, who communicated it under the MS. name of *H. Shepherdii* to the Royal Gardens, where it flowered in June, 1861; but we are unable to find any described species with which it satisfactorily accords, though copious specimens exist in our herbarium, gathered by Drs. Hooker and Thomson in Sikkim-Himalaya, at elevations of 3000 to 4000 feet, and in Khasya. In some respects it agrees with the *Hoya longifolia* of Wallich, in Wight and Arnott's Contrib. p. 36, and of Decaisne, in De Candolle, Prodr. v. 8, p. 637; but the shape of the foliage and the large size of the flowers are quite at variance with our plant, the corona of which is much more erect. The flowers are small, and bear no very distant resemblance to those of *Hoya Bella*, figured at our Tab. 4402; but the leaves constitute its chief distinguishing character: they are as it were geniculated at the apex of the rather short, terete petiole, or bent down suddenly at an angle, and thus become pendent: they are from two to (mostly) six inches long, not more than four lines wide, shortly acuminate at the apex, very dark on the upper side, and there canaliculate for their whole length, paler,

SEPTEMBER 1ST, 1861.

and semiterete beneath. The umbel of flowers is about two inches in diameter, and the corollas of a delicate white and rose colour.

Fig. 1. Flower. 2. Calyx and ovaries. 3. Ovaries, and the staminal crown:—*more or less magnified*.



TAB. 7000.
HUERNIA ASPERA.
Native of Zanzibar.

Nat. Ord. ASCLEPIADEÆ.-Tribe STAPELIEÆ.

Genus HUERNIA, *Br.*; (*Benth. et Hook. f. Gen. Pl.* vol. ii. p. 784.)

HUERNIA *aspera*; caulibus decumbentibus v. declinatis, ramis adscendentibus cylindraceis lævibus glaberrimis 5–6-sulcatis interspatiis convexis, foliis minutis remotis dentiformibus, cymis sessilibus 2–3-floris, bracteis subulatis, pedicellis corolla brevioribus, sepalis lineari-subulatis patentibus, corolla campanulata intus saturate purpurea, lobis brevibus deltoideis acuminatis, corone exterioris lobis 5 brevibus, interioris lobis subulatis antheris paullo longioribus.

H. aspera, *N. E. Brown in Gard. Chron.* 1887, vol. ii. p. 364.

This little plant is interesting as being a tropical African member of a genus that has hitherto been known to occur only in South Africa. About a dozen species are described, most of which were first published long ago as *Stapelias*, from which genus *Huernia* was separated by Brown on account of its campanulate corolla. In the early years of this century, when succulents were favourite objects of culture, about half-a-dozen kinds of *Huernia* were known, and of these five are figured in the early numbers of this Magazine. These are enumerated under *H. brevirostris*, *N. E. Br.* (tab. 6379), which, with *H. oculata*, *N. E. Br.*, are more recent *additions. The above all closely resemble *Stapelia* in habit, and occur in the headquarters of the tribe, which is the western districts of South Africa. *H. aspera*, on the other hand, not only inhabits a very distant and far different latitude and climate from these, but differs from them greatly in habit, which resembles a good deal that of the North African and Sicilian representative of the *Stapelieæ*, the *Boucerosia Gussoniana* (*Apteranthes Gussomiana*, Tabl. 5087).

H. aspera was sent from Zanzibar by Sir John Kirk in 1886, and is no doubt a native of that island or of the opposite coast. The plant flowered in the Royal Gardens in September, 1887.

DESCR. *Stems* straggling, procumbent, purplish brown,
JUNE 1ST, 1888.

with ascending divaricate green cylindric or fusiform branches, one and a half to four inches long; branches about half an inch in diameter, with five or six furrows, separated by rounded ridges. *Leaves* minute, tooth-like, distant, horizontal or recurved. *Flowers* few, in a sessile cyme; bracts subulate, and short pedicels dark purple. *Sepals* linear-subulate, greenish or purple, spreading. *Corolla* nearly one inch in diameter and as long, campanulate; lobes very short, broadly triangular, acute, sinus very shallow, with a central tooth, outer surface roughly papillose, pale purplish with broad dull veins; inner surface very dark purple, clothed with pointed papillæ. *Column* very short; outer corona of five broad short truncate very dark lobes; inner of five oblong-lanceolate yellowish erect incurved obtuse lobes, shortly produced beyond the anthers.—*J. D. H.*

Fig. 1, Base of column with sepals and corona; 2, column; 3, column with the five inner lobes of the corona removed; 4 and 5, pollinia:—*all enlarged.*



TAB. 6379.

HUERNIA BREVIROSTRIS.

Native of South Africa.

Nat. Ord. ASCLEPIADEÆ.—Tribe STAPELIÆ.

Genus HUERNIA, *R. Br. (Benth. et Hook. f. Gen. Plant, vol. ii. p. 784.)*

HUERNIA *brevirostris*; humilis, cæspitosa, ramis crassis 4–5-angulatis, angulis acutis dentatis, floribus cymosis, cymis sessilibus ad mediam ramorum enatis, floribus 4–6, pedicellis glabris, lobis calycinis lanceolato-subulatis, corolla pallide sulphurea sanguineo-punctata, extus lævi intus minute papillata, tubo campanulato, limbo patentissimo diametro $1\frac{1}{4}$ poll., lobis deltoideis acuminatis, corona exterior 5-loba velutino-atra, lobis rectangulis emarginatis, coronæ interioris lobis apice in cornua brevissime productis.

H. brevirostris, *N. E. Brown in Gardeners' Chronicle*, n. s. vii. p. 780.

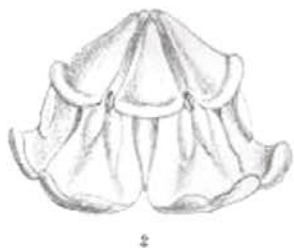
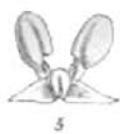
A very pretty species of the interesting genus *Huernia*, a genus which for some unaccountable reason has never been adopted by horticulturists, although it is one of the most distinct in the tribe *Stapeliæ*, and which may always be recognised by the corolla having a distinct tube and a more or less spreading limb, with the genitalia seated at the bottom of the tube, the outer corona being quite sessile and more or less adnate to the bottom of corolla. Five species of *Huernia* have now been figured in the “Botanical Magazine,” viz., *H. lentiginosa* (t. 506), *H. clavigera* (erroneously figured at t. 1661 as *H. campanulata*, and at t. 2401 as *H. barbata*), *H. campanulata* (t. 1227), *H. Hystrix* (t. 5751), and the present species. Most of these have been figured under the generic name of *Stapelia*, with the name *Huernia* placed in the synonymy. *H. brevirostris* is not closely allied to any other described species, and is well distinguished from all known to me by its very thick stems, hairless corolla, and the very short apices of the lobes of the inner corona; like

AUGUST 1ST, 1878.

several of its congeners it is almost scentless. It was discovered by Mr. Bolus on the dry, rocky hills of Ryneveld's Pass, near Graaff Reinet, in South Africa, at an altitude of 2700 ft., where it is tolerably common, and flowers in April. Our drawing was made from a plant sent to Kew by Mr. Bolus, which flowered in August, 1875.

DESCR. Plant dwarf and cæspitose, glabrous. *Stems* two to three inches long, three-quarters to one inch thick, four- to five-angled; angles acute, acutely toothed. *Flowers* in four- to six-flowered sessile cymes, arising from about the middle or towards the base of the younger branches. *Pedicels* four to six lines long. *Calyx* five-parted; segments lanceolate-subulate acute, two to three lines long. *Carolla* one and a quarter inches in diameter, outside smooth, pale green, often tinged with purplish on the tube, the lobes darker, faintly spotted with minute purplish spots, and marked with three strong and two faint nerves or ribs; inside, the tube excepted, minutely papillate, the papillæ with a minute purple-red spot at the apex, some of those in the throat minutely bristle-pointed, otherwise quite glabrous, pale sulphur-yellow, covered with small blood-red spots; tube pinkish white, spotted with blood-red, the bottom entirely blood-red, smooth and shining; tube three lines deep, slightly constricted at the mouth, limb very spreading, the lobes deltoid acuminate recurving. *Outer corona* velvet-black, 5-lobed, lobes rectangular, emarginate. *Inner corona* of five lobes, purplish, spotted in the upper part with yellowish, their apices very shortly produced, not more than half a line long.—*N. E. Brown.*

Fig. 1, Corona seen from above; 2, corona, side view; 3, anther and lobe of inner corona, detached:—*all enlarged 7 diameters.*



TAB. 7905.

HUERNIA CONCINNA.

Native of Somaliland.

Nat. Ord. ASCLEPIADACEÆ.—Tribe STAPELEÆ.

Genus HUERNIA, *B. Br.*; (*Benth. & Hook.f. Gen. Plant.* vol. ii. p. 784.)

HUERNIA *concinna*; caulibus 1–2 $\frac{1}{2}$ poll. longis caspitosis 5-gonis, spinis ad $\frac{1}{4}$ poll. longis subulatis, floribus solitariis binisve, pedicellis brevibus glabris, corolla late campanulata extus glabra alba intus ubique processibus subulatis conspersa pallide sulphurea punctis rubro-purpureis maculata, lobis $\frac{1}{3}$ poll. longis deltoideis acuminatis purpureo-marginatis, sinibus latis fundo apiculatis, coronæ exterioris breviter 5-loba velutinæ purpureæ lobis transverse oblongis emarginatis, coronæ interioris lobis late ovatis conniventibus flavis purpureo punctatis et marginatis.

H. concinna, *N.E. Br. in Dyer, Fl. Trop. Afr.* vol. iv. p. 497.

H. macrocarpa, *Taubert in Gartenfl.* 1895, p. 353, t. 1416, *non alior.*

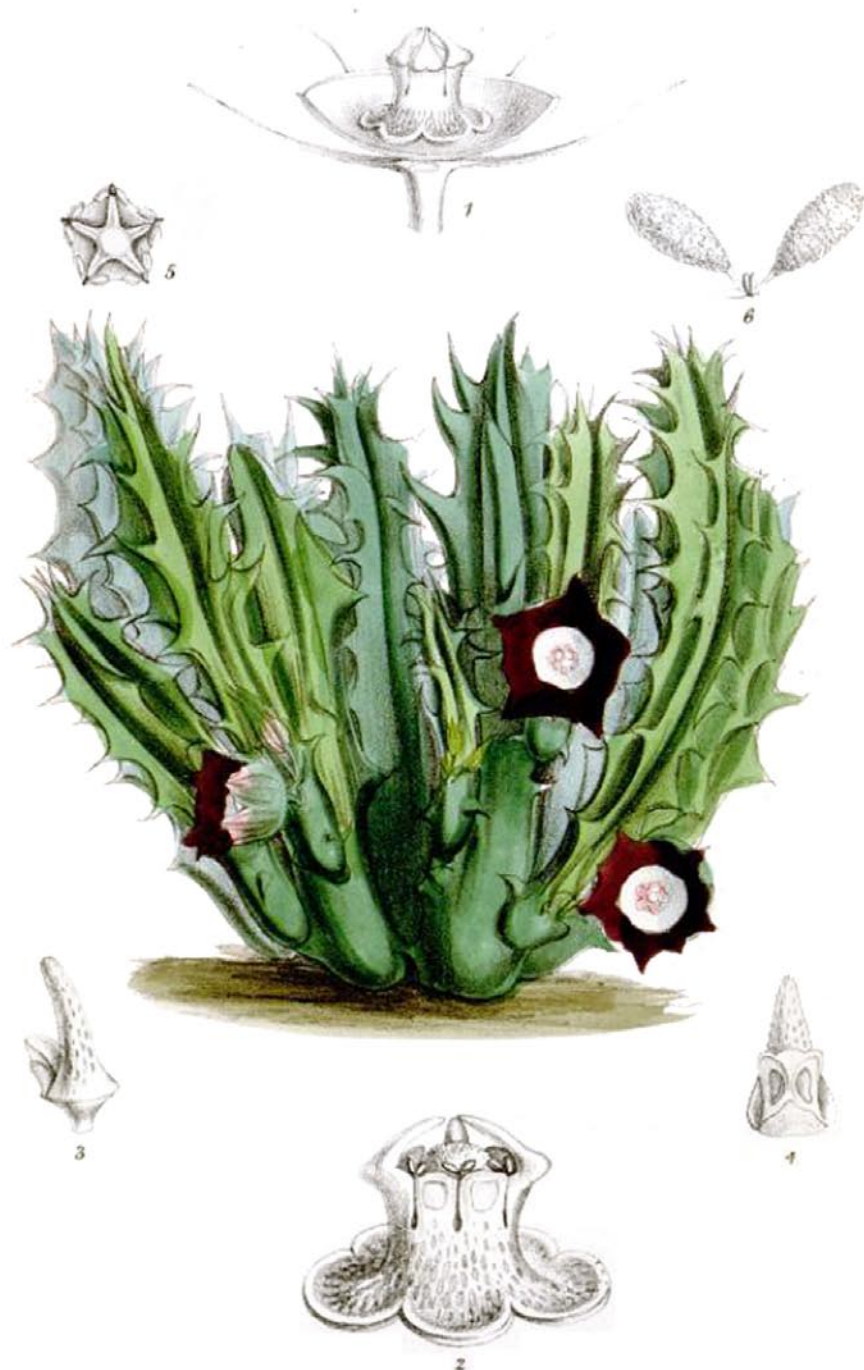
The genus *Huernia*, estimated in the “Genera Plantarum” in 1886 to contain eleven species, all South African, has been largely increased by recent discoveries in tropical Africa, whence eight additional species have been described by Mr. N. E. Brown in the very recently issued Flora of that region; and an Arabian congener, *H. arabica*, N. E. Br., has added Asia to the geographical range of the genus. *H. concinna* was, together with another new species (*H. Somalica*, N. E. Br.) brought from Somaliland by Mrs. Lort Phillips, and presented to the Cambridge Botanic Garden, where it flowered in the midsummer of 1900, and was described by Mr. N. E. Brown, whose description I have followed above. The individual specimen is that here figured, which was forwarded by Mr. Lynch to the Royal Gardens, Kew, in June, 1900.

DESCR.—*Stems* clustered, one to two and a half inches long, five-angled, spiny; spines about a quarter of an inch long, subulate. *Flowers* solitary or in pairs, on short, glabrous pedicels. *Sepals* a quarter of an inch long, gradually tapering from a broad base to fine hair-like points, glabrous. *Corolla* broadly campanulate, about one inch across, glabrous outside, smooth, yellowish white, covered everywhere inside with bristle-like appendages, pale yellow, dotted with purple-brown; lobes about one-

JULY 1ST, 1903.

third of an inch long, deltoid, acuminate, not fringed, alternating with as many teeth. *Outer corona* very shortly five-lobed; lobes transversely oblong, emarginate, velvety, purple-brown. *Inner coronal-lobes* broadly ovate, connivent in a cone over the tips of the anthers, yellow, edged and speckled with purple-brown.—*J. D. H.*

Fig. 1, portion of inner surface of corolla; 2, corona; 3, the same with the inner lobes removed; 4 and 5, pollinia:—*all enlarged.*



HTD. del JN Hatch lith.

Vincent Brooks Dey & Son imp.

TAB. 6658.

HUERNIA OCULATA.

Native of Dammara Land.

Nat. Ord. ASCLEPIADEÆ.—Tribe STAPELIÆ.

Genus HUERNIA, *R. Br.*; (*Benth. et Hook. f. Gen. Pl. vol. ii. p. 784.*)

HUERNIA *oculata*; humilis, cæspitosa, glaberrima, ramis erectis 5-angulatis, sinubus acutis, angulis compressis grosse molliter spinoso-dentatis, dentibus rectis v. curvis, floribus subcymosis breviter pedicellatis, pedicellis glabris, lobis calycinis subulato-lanceolatis, corollæ lævis lobis brevibus parvis triangularibus acutis sinubus 1-dentatis, limbo saturate purpureo, tubo albo, corona exteriora a basi columnæ explanato 5-lobo, lobis horizontalibus rotundatis integerrimis, interiore e cornubus 5 dorso antherarum adnatis dein inflexis apicibus supra stigma cohærentibus.

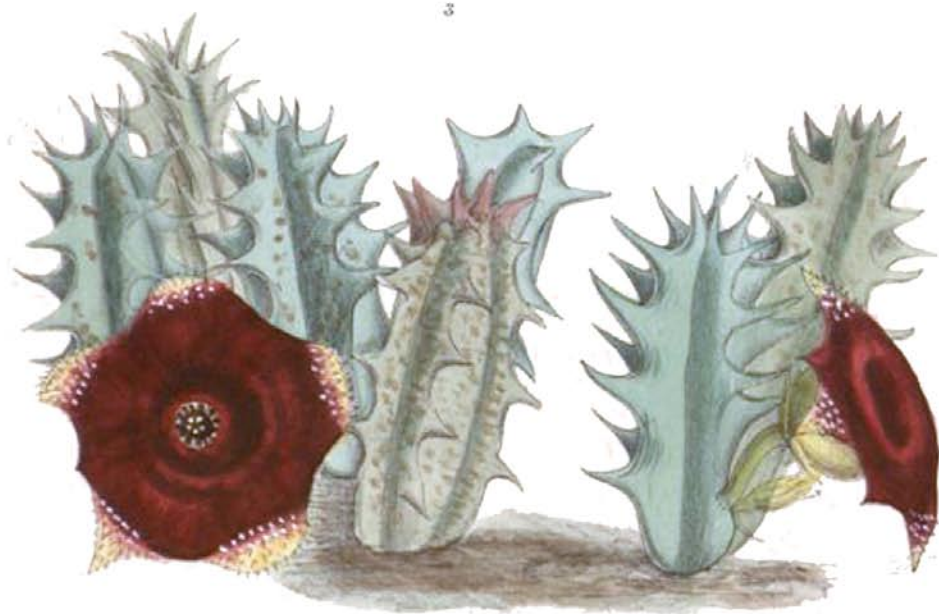
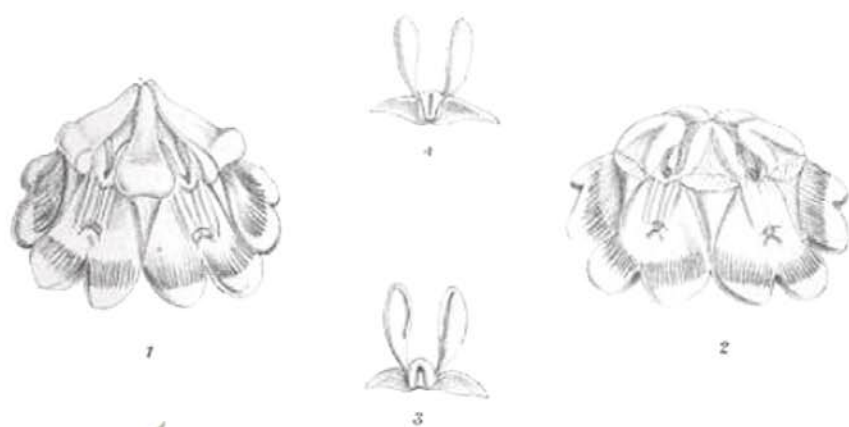
The genus *Huernia*, of which only a dozen species are described, is no doubt a very large one in South Africa, extending from the Cape district far to the north, though its exact limits are unknown. The species resemble *Stapelias* in habit, but differ in the broadly campanulate or cupular corolla with very small lobes, and having a tooth in the sinus between them. *H. oculata* resembles no described species, and is remarkable for the striking contrast in colour between the deep violet-purple limb of the corolla and the white cup-shaped tube, the limits of the colours being so sharply defined that the flower has a staring look. It was procured with other very singular plants in Dammara Land, in 1880, by Capt. Een, when trading on that coast, and brought by him to Kew, where it flowered in June, 1880.

DESCR. Densely tufted, branching from the base, pale green, soft; branches three to four inches high by one-half to three-quarters of an inch broad, five-angled, quite smooth, sinus deep between the angles, acute at the base; angles compressed, produced into soft spine-like teeth one-third to half an inch long, that are broad at the base and straight or curved. *Flowers* in small lateral few-flowered

NOVEMBER LST, 1882.

cymes; pedicels short, glabrous. *Calyx* segments one-third of an inch long, subulate. *Corolla* nearly one inch in diameter, tube almost hemispherical, rounded at the base; limb short spreading, five-toothed, the teeth short triangular acute remote, with a minute intermediate tooth; the tube is white inside, the limb deep violet-purple, sharply defined in a circle against the white of the tube. *Column* short; outer corona adnate to the base of the column, spreading horizontally from it, five-lobed; lobes fleshy, rounded, quite entire, concave on the surface; inner corona of five large subulate fleshy papillose teeth inserted one at the back of each anther, inflected over the stigma and meeting at their points. *Anthers* truncate; pollen-masses pyriform, caudicle short; gland with two subulate auricles. *Stigma* discoid, five-angled.—*J. D. H.*

Fig. 1, Four sepals, portion of the base of the corolla and column; 2, column with outer and inner corona; 3, side, and 4, front view of anther and inner coronal appendage; 5, stigma and pollen-masses; 6, pollen-masses:—*all enlarged.*



TAB. 7730.

HUERNIA SOMALICA.

Native of Somaliland.

Nat. Ord. ASCLEPIADEÆ.—Tribe STAPELIÆ.

Genus HUERNIA, Br.; (*Benth. & Hook. f. Gen. Plant.* vol. ii. p. 784.)

HUERNIA *somalica*; caulibus brevibus crassis pentgonis glabris pallide viridibus, angulis crassis grosse sinuato-dentatis, dentibus ad $\frac{1}{2}$ poll. longis deltoideo-subulatis lateraliter compressis apicibus spinescentibus, floribus basin versus ramorum erratis breviter crasse pedicellatis, sepalis subulatis $\frac{1}{4}$ -poll. longis, corolla tubo parvo subgloboso-campaulato glabro, limbo $1\frac{1}{2}$ –2 poll. diam. patenti-recurvo glabro fusco-psrpureo remote 5-lobato, lobis deltoidies acutis ochraceis papillis rubris ornatis sinubus latis medio dentiferis, coronæ exterioris lobis subquadratis bifidis glabris sanguineis interioris lobis late subulatis incurvis conniventibus luteis, antherarum loculis angustis pallidis, polliniis clavatis glandula bialata sessilibus.

H. *somalica*, N.E. Br. in *Kew Bulletin*, Nov., 1898, p. 309.

The genus *Huernia*, Br., consists of about sixteen species of South African and Tropical African plants, distinguished from *Stapelia* chiefly by the toothed sinus of the corolla and adnate outer corona. Nine of these, including *H. Somalica*, have been figured in this work, some of them under *Stapelia*. I am indebted to Mr. N. E. Brown for the following enumeration of them:—*H. venusta*, R. Br. (*St. lentiginosa*, Sims, t. 505). *H. campanulata*, R. Br. (*S. campanulata*, Mass. t. 1227). *H. clavigera*, Haw. (as *S. campanulata*, Mass. t. 1661, and *S. barbata*, Mass. t. 2401). *H. reticulata*, Haw. (*S. reticulata*, Mass. t. 1662). *H. Hystrix*, N. E. Br. (*S. Hystrix*, Hk. f. t. 5751), *H. brevirostris*, N. E. Br. (t. 6379); all from South Africa; and *H. oculata*, Hk. f. (t. 6658), and *H. aspera*, N. E. Br. (t. 7000), from Tropical Africa.

Huernia somalica was brought from Somaliland by Mrs. Lort Phillips, who presented living specimens, both to the Royal Gardens, Kew, and to the Gardens of the University of Cambridge, with the information that it was called “Anahrob” by her Somali boy. It flowered for the first time at Cambridge in July, 1897, and in the following year at Kew. The figure is of the Cambridge specimen.

AUGUST 1ST, 1900.

Descr.—*Stems* short, two to three inches high, about an inch in diameter, simple, sub-erect, five-angled, glabrous, pale green; angles deeply, regularly sinuate-toothed; teeth about a fourth of an inch long, subulate-deltoid, laterally compressed, green, pungent. *Flowers* from the lower part of the stem stoutly pedicelled, one and a half to two inches in diameter; pedicel sigmoidly curved, stout. *Sepals* subulate, about a fourth of an inch long. *Corolla-tube* small, globosely campanulate, glabrous; limb spreading and recurved, forming an annulus around the mouth of the tube, dark purple, glabrous, remotely five-lobed; lobes deltoid, spreading, acute, ochraceous, studded with purple papillæ; sinus with a minute tooth. *Corona* very small; outer lobes sub-quadrate, bifid, glabrous, blood-red; inner broadly subulate, incurved, with their tips connivent, golden-yellow, bases tumid. *Pollinia* narrowly clavate, seated on a two-winged gland.—*J. D. H.*

Fig. 1, staminal corona; 2, the same, with the inner lobes removed; 3 and 4, pollinia:—*All enlarged.*

N^o 1464



Edwards Del

Pub by J. Carter Walworth May 1871.

E. S. S. S. S.

JATROPHA INTEGERRIMA. SPICY JATROPHA

Class and Order.

MONÆCIA MONADELPHIA

Generic Character.

Cal. (fæpius) 0. *Cor.* 1-petala, infundibuliformis. *Stam.* 10. alterna breviora.

FEM. *Cal.* (fæpius) 0. *Cor.* 1-petala, patens. *Styli* 3—2-fidi. *Capf.* 3-locularis.

Specific Character and Synonymss.

JATROPHA *integerrima*; calyculata, caule arboreo, foliis cordatis integerrimis angulatifve, floribus dichotomo-paniculatis dioicis.

JATROPHA *integerrima*; foliis ovatis acuminatis integerrimis glaberrimis, racemis subcymosis. *Jacq. Amer. p.* 256. *t.* 183. *f.* 47. *Willd. Sp. Pl. 4. p.* 559. *Perfoon Syn. 2. p.* 587.

This splendid JATROPHA, which even exceeds in brilliancy of colour the *pandurefolia* (No. 604), was introduced into this country from the Island of Cuba, by the late Mr. FRASER, of Sloane-Square. If it should fortunately be as easily propagated as its kindred species, it will prove a valuable addition to our stove plants.

That this tree is diœcious, we presume; not only from not being able to find an individual female flower, but because none of any kind is produced in the dichotomy of the panicle: the situation in which alone the female flowers occur in its kindred species, the *pandurefolia*.

The bark, when dry, is strongly aromatic, not unlike in smell to Winter's bark, but extremely fiery to the taste, affecting the fauces with the same durable acrimony, so common to the natural order of *tricocæ*.

We have no doubt but that it is the JATROPHA *integerrima* of JACQUIN, which this author says is cultivated in gardens in the Havannah, for the sake of its beautiful scarlet flowers, an inch in diameter. In dried specimens brought over by Mr. FRASER, and now in the Herbarium of A. B. LAMBERT Esq. most of the leaves are quite entire, some with here and there an angular process; and the pubescence, so conspicuous in our drawing, seems, by the specimens, to be lost in plants that are further advanced.



JATROPHA PANDURÆFOLIA. FIDDLE-LEAVED PHYSIC-NUT.

Class and Order.

MONÆCIA MONADELPHIA.

Generic Character.

MASC. *Cal.* (fæpius) 0. *Cor.* 1-petala infundibuliformis.
Stam. 10. alterna, breviora.

FEM. *Cal.* (fæpius) 0. *Cor.* 5-petala patens. *Styli* 3. bifidi.
Capf. 3-locularis.

Specific Character and Synonymss.

JATROPHA *panduræfolia*; foliis simplicibus panduræfomibus acuminatis basi spinuloso-dentatis, fructibus cernuis subrotundis.

JATROPHA *imperialis* Petropolitana. *Fraferi.*

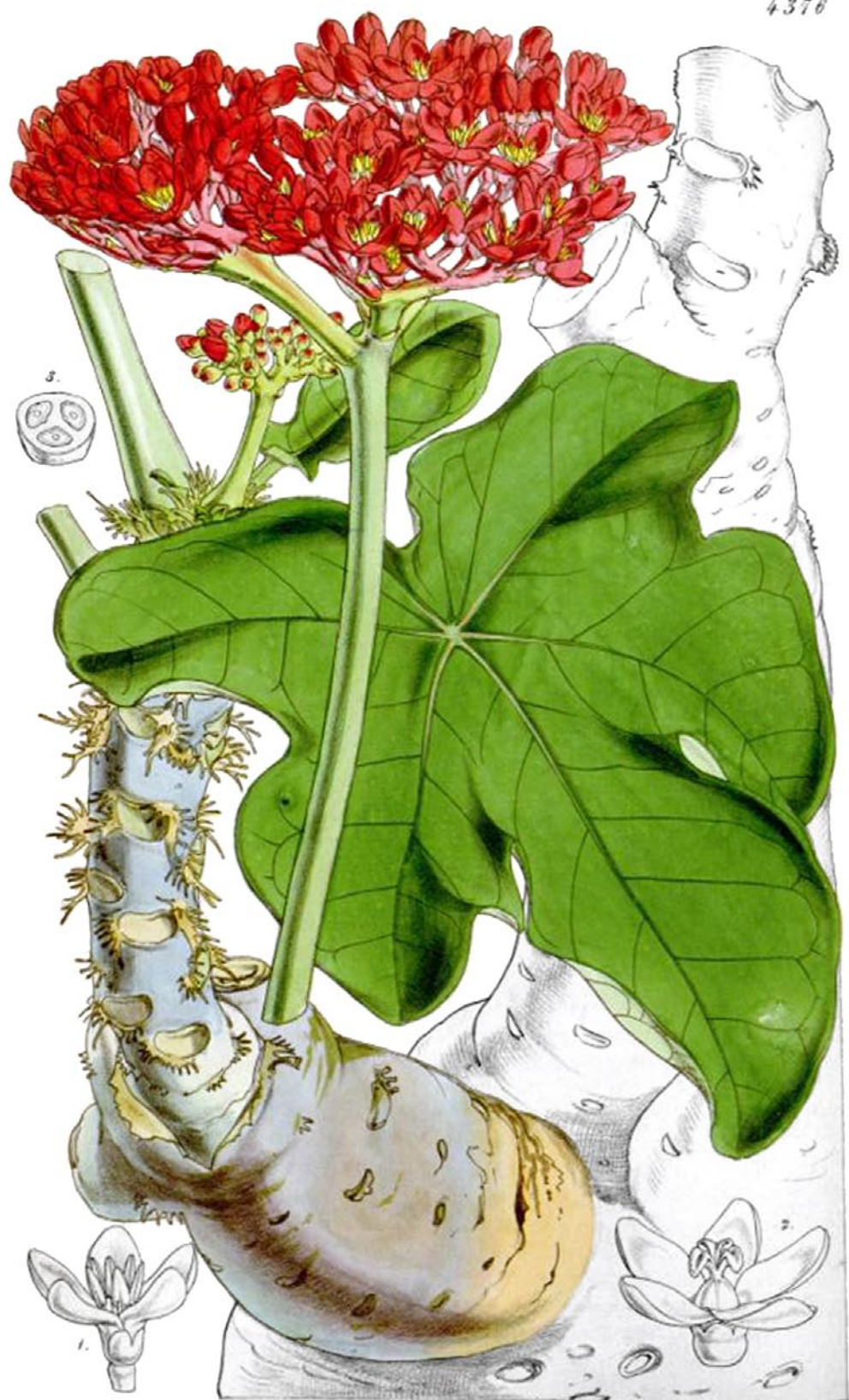
Both the male and female flowers are furnished with a calyx, which in the latter is divided to the base and persistent; in the male the laciniae are shorter and divided only half way. In both the corolla appears to be pentapetalous, but more decidedly so in the female flower; in the male the calyx adheres so closely to the corolla as to resist its separation and render it difficult to decide whether it be monopetalous or polypetalous. The flowers grow in an umbellated dichotomous panicle on long terminal peduncles. The pedicle in the centre of the dichotomy always bears a female flower, the side branches all male. The latter are of course much the most numerous. The female flowers are first expanded and of short duration; so that at first there appear to be all female and afterwards all male, both sexes seldom appearing at the same time. The fecundation of the germen must therefore depend upon its receiving the pollen from other plants, or at least from the flowers of different branches, and not from those nearest it. Flowers and fruit exist frequently at the same time, the former erect,
the

the latter cernuous. Seed-vessel nearly round, smooth, three-celled, with one oblong large seed in each cell. Leaves apt to vary in form, but in general broadest towards the point, which is acuminate, contracted in the middle, and rounded at the base*, where it is beset with a few unequal subspinescent teeth, apt in luxuriant growth to become auriculated processes, as in our figure: the margin is reflected. The beautiful coloured variegation of the under surface is not constant, disappearing if the air has not free access to it. The whole plant abounds with a semipellucid milky fluid.

It is a very ornamental shrub, flowering through the greatest part of the year, and appears not to be tender, succeeding best, according to Mr. FRASER, with very little artificial heat. Is a fast grower, and easily propagated by laying down the branches. Introduced by Mr. J. FRASER, Nurseryman, Sloane-Square, who brought it from the Island of Cuba, on his return from his last voyage to North-America.

Jacquin describes two species of *Jatropha*. which appear to have considerable affinity with this, both with scarlet flowers, his *hastata* and *integerrima*, the first of which he saw in the gardens at St. Domingo, but of East-Indian origin, the other in the gardens at the Havannah.

* This form of leaf LINNÆUS has called *panduræform*, and the term having been defined, is well understood by Botanists, and may therefore be retained, notwithstanding the *Pandura* of the ancients appears to have been wind-instrument, bearing no resemblance to the modern violin,



JATROPHA PODAGRICA

Gouty-stalked Jatropha

Nat. Ord. EUPHORBIACEÆ.—MONECIA MONADELPHIA.

Gen. Char. Flores monoici. *Calyx* 5-partitus æstivatione convolutiva. *Corolla* petala 5, calyce longiora, æstivatione convolutiva, cum glandulis 5 alternantia. *Stamina* 8–10; *filamentis* inferne connatis, superne filiformibus liberis, *antheris* introrsis bilocularibus. *Fœm.* ovarium glandulis 5 cinctum, triloculare, loculis uniovulatis. *Styli* 3, bilobi bifidive aut pluries dichotomi: *stigmata* crassa. *Capsula* 3-locularis, coccis monospermis.—Arbores v. frutices, aut rarius herbæ *lactescentes*, foliis *alternis integris* v. sæpius *palmatilobis*, floribus *axillaribus* aut *terminalibus corymbosis*, sæpe *læte coloratis*.

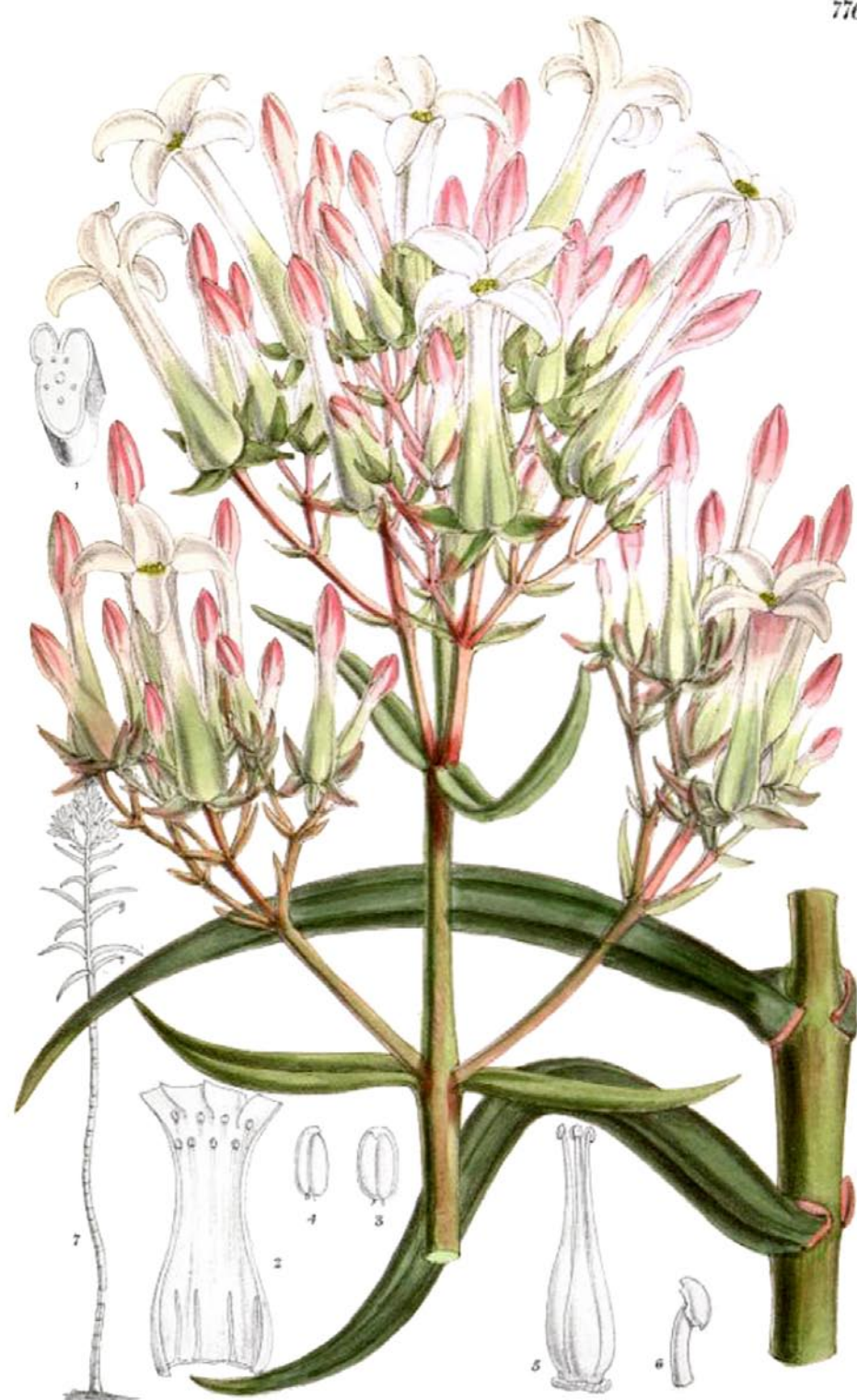
JATROPHA *podagrica*; caule erecto ramoso ramisque basi valde intumescens, foliis peltatis cordatis 5-lobis glabris lobis subovatis obtusissimis, stipulis glanduloso-fimbriatis, cymis longe pedunculatis terminalibus, calycis dentibus obtusis, corollæ lobis ovatis obtusis patentibus.

A very remarkable new *Jatropha* from Santa Martha, New Grenada, with a singularly distorted stem and branches; much swollen at their bases, succulent, pale greenish-brown; the main trunk and old branches marked with the almost obliterated scars of the fallen leaves, the younger portions of the branches of the plant, which are about an inch in thickness, showing the much larger scars of *recently* shed leaves, rendered more conspicuous by the persistent, fimbriated, and glandular stipules, one on each side the large scar. The cyme of flowers is large, and of a rich orange-scarlet. It flowers at almost all seasons of the year.

DESCR. Stem, in our plant, a foot and a half high, much and irregularly swollen at the base; branches also swollen at the base; the rest terete, green and succulent, marked with numerous pits or hollows whence the leaves have dropped, and with the somewhat palmate and deeply pinnatifid or ciliated glandular *stipules*. Only a few *leaves* appear at one time, and they are confined to the apices of the branches, on long petioles, cordate, peltate, five-lobed glabrous, the lobes obtuse, entire, somewhat ovate. *Peduncles* terminal, elongated, bearing a rather large cyme of

numerous, rather small, orange-red, monoëcious flowers: the females few, in the axils of the main bractees of the peduncles. *Calyx* cup-shaped, five-lobed, the lobes erect, very obtuse. *Corolla* deeply five- or six-partite, the segments ovate, spreading. *Stamens* six to eight, yellow: the filaments combined at the base, and having five glands there, united into a ring. *Ovary* ovate, with similar glands; *style* short, much divided into several green *stigmas*.

Fig. 1. Male flower. 2. Female ditto. 3. Transverse section of an ovary:—*magnified*.



M. S. del., J. N. Pichler lith.

Vincetoxicum, Hooker, Day & Son Lith.

J. Reeve C^o London.

TAB. 7765.
KALANCHOE BENTII.
Native of Southern Arabia.

Nat. Ord. CASSULACEÆ.

Genus KALANCHOE, *Adans.*; (*Benth. & Hook. f. Gen. Plant.* vol. i. p. 659)

KALANCHOE *Bentii*; frutex erectus, glaberrimus, caule elongato simplici tereti foliisque fusco-viridibus, foliis glaucis decussatim oppositis sessilibus 3–6-poll. longis patenti-recurvis pugioniformibus crasse carnosis a latere compressis dorso rotundatis facie sulcatis ima basi tumidis semi-amplexicaulibus medio ad $\frac{1}{2}$ poll. latis dein sensim ad apicem acutam attenuatis, paniculæ ramulis subcorymbosis multifloris, bracteis bracteolisque angustis carnosis, floribus erectis pedicellatis, sepalis 4 patulis ovato-lanceolatis $\frac{1}{4}$ – $\frac{1}{2}$ poll. longis carnosulis luride viridibus, corollæ albæ tubo $1\frac{1}{2}$ poll. longo subtetragono a basi tumido virescente $\frac{1}{3}$ poll. diam. sensim attenuato, limbi lobis $\frac{1}{2}$ poll. longis patenti-recurvis ovatis albis intus papillosis alabastro roseis, disci squamulis filiformibus, antheris minutis oblongis, carpellis angustis in stylos graciles attenuatis.

K. *Bentii*, C. H. Wright mss.

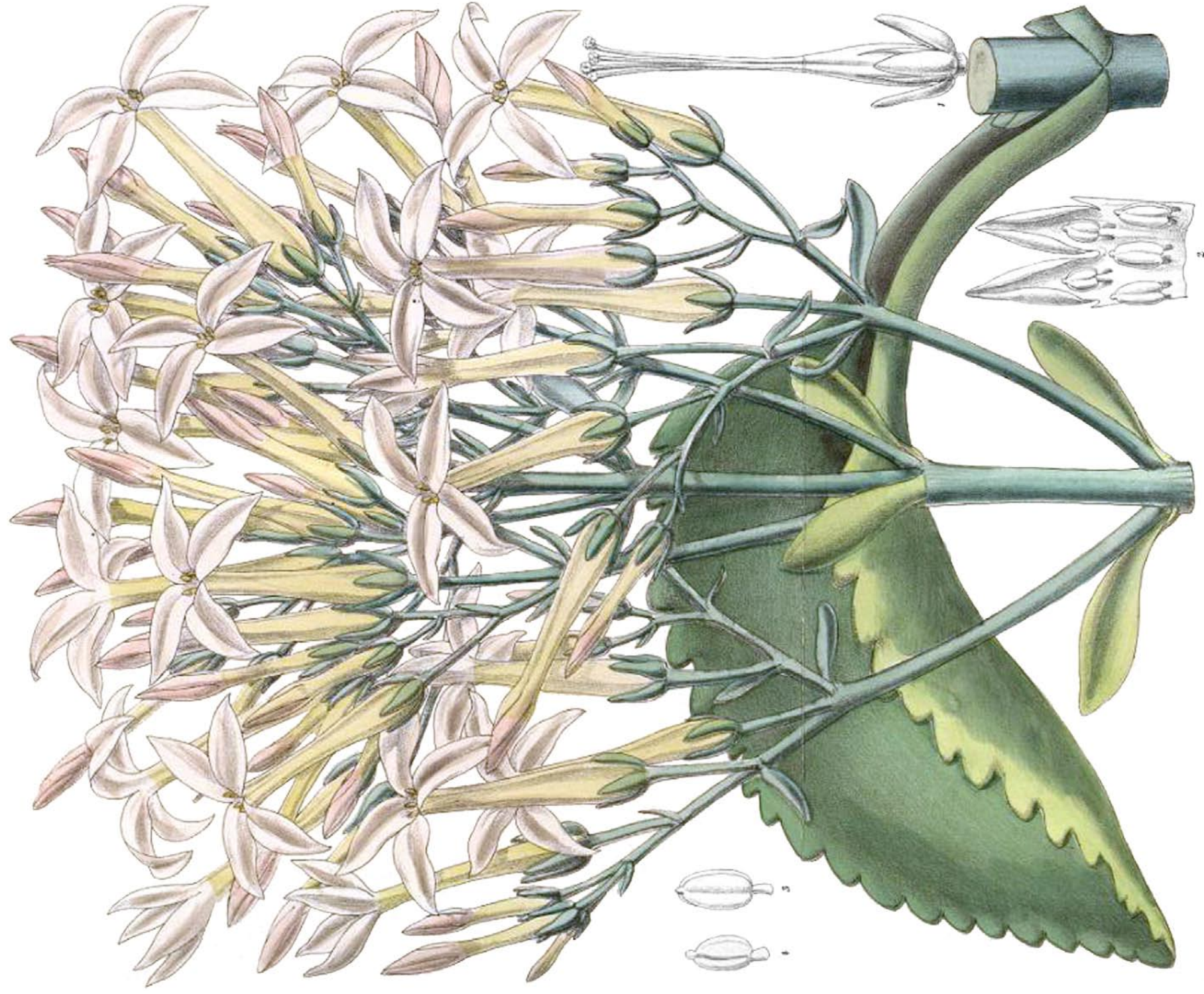
Kalanchoe Bentii was raised from seeds collected by the late Mr. Theodore Bent in the Hadramaut district of Southern Arabia in 1894, and sent to the Royal Gardens, Kew. It flowered in June, 1900. As a species it differs from all others in the form of the leaves.

Descr.—*Stem* in the specimen figured quite simple, three feet high, erect, slender, one inch in diameter, scarred at the closely set internodes, leafy for the upper third, terete, smooth, dull olive-green; upper internodes about an inch long. *Leaves* decussately opposite, thickly fleshy, three to six inches long, spreading and recurved, dagger-shaped, gradually contracted from the middle to the tumid, sessile, semi-amplexicaul base, and to the acute tip, laterally compressed, about half an inch thick in the middle, dorsally rounded, deeply grooved on the upper surface, margins rounded, dirty olive-green in colour, and glaucous. *Panicle* erect, many-fld., eight inches high; rhachis, branches and branchlets erecto-patent, terete; pedicels short; bracts and bracteoles linear, fleshy. *Flowers* sub-corymbose on the branches of the panicle, erect, an inch and a half long, white, with pink unexpanded corolla-lobes. *Sepals* ovate-lanceolate, a quarter to half an inch long, spreading, olive-

MARCH 1ST, 1901.

green, fleshy. *Corolla-tube* obscurely four-angled, about one-sixth of an inch in diameter in the middle, gradually dilating downwards to the tumid base, which is one-third of an inch diam.; lobes ovate, half an inch long, spreading and recurved. *Anthers* minute. *Disc-scales* filiform. *Carpels* slender, narrowed into almost filiform, erect styles, with minute capitate stigmas.—*J. D. H.*

Fig. 1, transverse section of leaf; 2. corolla laid open; 3 and 4, anthers; 5, carpels; 6, stigmas:—*all enlarged*; 7, *reduced view* of whole plant.



M.S. det. J.N. Fiedler

L. Fournier & C. J. Fournier

Vernonia Throobes Day & San L. Fournier

TAB. 7987.
KALANCHOE DYERI.
Native of Nyasaland.

Nat. Ord. CRASSULACEÆ.

Genus *KALANCHOE*, *Adans.*; (*Benth. et Hook. f. Gen. Plant.* vol. i. p. 659.)

KALANCHOE Dyeri; herba succulenta, 2–2½ ped. alta, glabra, plus minusve glauca, foliis oppositis petiolatis ellipticis obtusis basi rotundatis vel cuneatis margine grosse crenato-dentatis petiolo 1½–3 poll. longo alte canaliculato lamina 4–7½ poll. longa 2½–5 poll. lata, foliis superioribus bracteisque multo minoribus spathulato-obovatis vel lanceolatis obtusis vel subacutis integris, floribus tetrameris pedicellatis in cymas corymbosas terminales dispositis, sepalis 3½–6 lin. longis deltoideo-lanceolatis obtusis, corollas tubo 1¾–2 poll. longo basi 4-angulato pallide viridi, limbi lobis ¾–1 poll. longis lanceolatis acutis albis, staminibus 8 biseriatis filamentis brevissimis antheris parvis luteis superioribus breviter exsertis, glandulis hypogynis filiformibus apice plus minusve bifidis albis, carpellis lineari-lanceolatis in stylos longos filiformes attenuatis glabris stigmatibus capitatis.

K. Dyeri, *N.E. Brown in Gard. Chron.* 1904, vol. i. p. 354.

This species of *Kalanchoe* is one of the finest that has yet been introduced into cultivation. It is allied to *K. marmorata*, Baker (B. M. t. 7333), *K. somaliensis*, Baker (t. 7831), and *K. longiflora*, A. Rich. These four handsome species are all natives of tropical Africa, and form a distinct group, characterized by their large, long-tubed, white flowers.

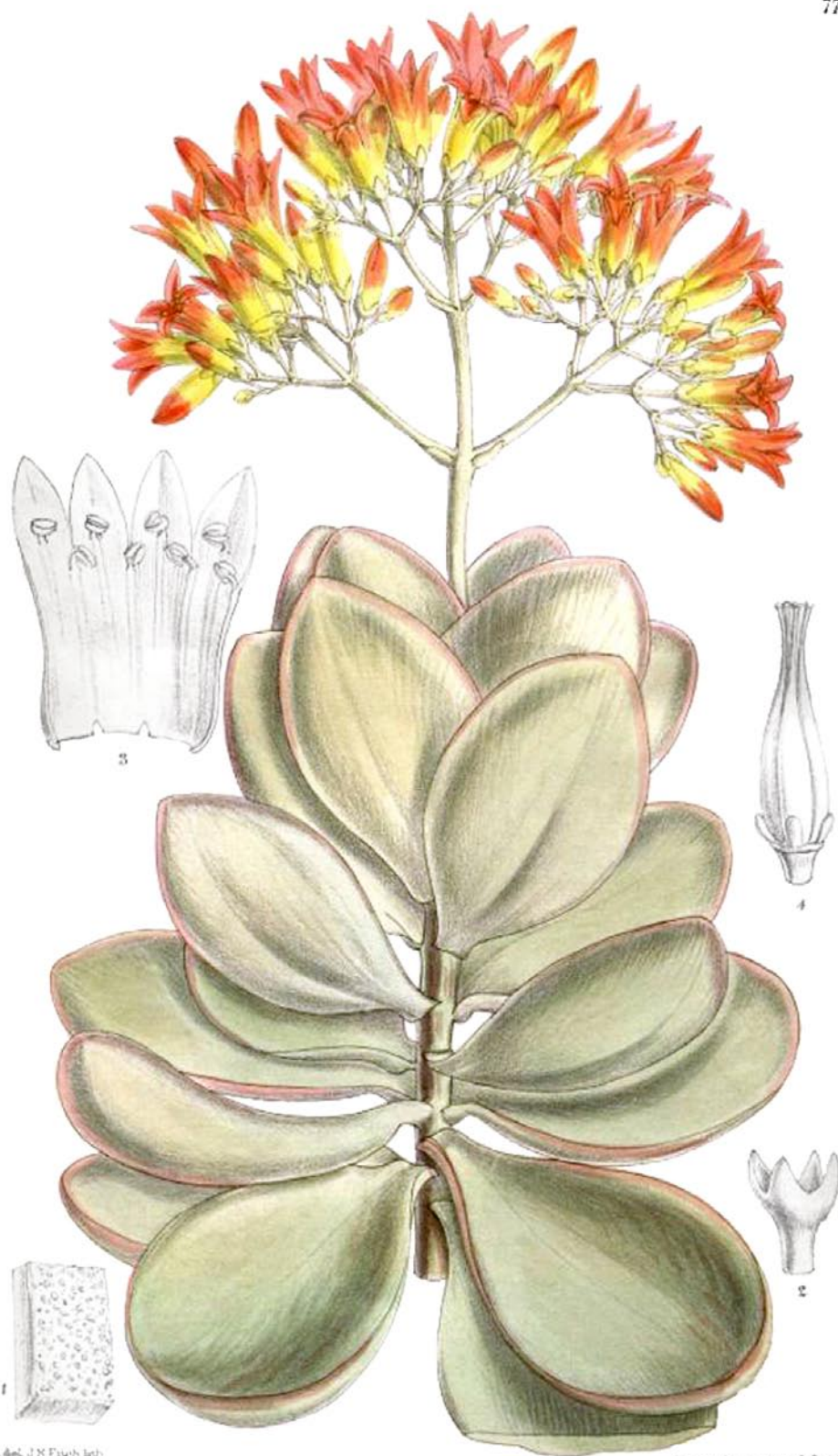
K. Dyeri was raised at Kew from seeds sent in 1902, from Nyasaland, by Mr. J. McClounie, Director of the Scientific Department of British Central Africa. The plants first flowered in April, 1904, and have ripened seeds, from which young plants have been raised.

Descr.—Plant two feet to two feet and a half high, with a stout stem about three-quarters of an inch thick at the base, glabrous in all parts and more or less glaucous on the green parts. *Leaves* opposite, very spreading, petiolate; petiole one and a half to three inches long, four and a half to six lines broad and nearly as thick, sub-terete, slightly flattened above, dilated at the base, green, slightly tinted with purple and speckled with white; blade four to seven and a half inches long,

DECEMBER 1ST, 1904,
two and a half to five inches broad, elliptic, obtuse,

rounded or cuneate at the base, with irregular, obtuse teeth, two to three lines long, four to six lines broad, flat or with the sides more or less incurved, green, with a purplish tint on the midrib and principal veins above; leaves and bracts on the inflorescence half to two inches long, spathulate-obovate to lanceolate, sub-acute or obtuse, entire. *Inflorescence* a terminal, corymbose cyme nine to twelve inches long, six to nine inches across, with three or four pairs of three- to ten-flowered, sub-erect branches. *Pedicels* eight to nine lines long, three-quarters to one line thick. *Sepals* three and a half to six lines long, half to two lines broad at the base, thence tapering to an obtuse point. *Corolla-tube* one and three-quarters of an inch long, three and a half to four lines square at the base, pale green; lobes very spreading, one inch long, four and a half to five lines broad, lanceolate, acute, pure white. *Stamens* eight, inserted near the top of the tube, the four lower included, the four upper just exerted from the mouth of the tube; filaments three-quarters to one line long; anthers small, half to three-quarters of a line long. *Hypogynous glands* five lines long, filiform, more or less bifid at the apex, white. *Carpels* with a linear-lanceolate ovary three-quarters of an inch long, sub-quadrate in transverse section, tapering into a filiform style eleven lines long, all twisted together at the base, green; stigmas capitate, white.—*N. E. Brown.*

Fig. 1, calyx, hypogynous glands and carpels; 2, part of the top of an unopened corolla and stamens; 3 and 4, stamens:—*all enlarged.*



M. S. & Co. 1 X Fresh leaf

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L. Reeve & Co. London

TAB. 7769.
KALANCHOE FARINACEA.
Native of Socotra.

Nat. Ord. CRASSULACEÆ.

Genus KALANCHOE, *Adans.*; (*Benth. et Hook. f. Gen. Plant.* vol. i. p. 659.)

KALANCHOE *farinacea*; fruticulus robustus, 6–12-pollicaris, caule crasso erecto v. basi decumbente subtereti transverse ruguloso, foliis $1\frac{1}{2}$ –2-pollicaribus confertis decussatim oppositis sessilibus obovatis apice rotundatis basi angustatis crasse carnosius pallide virescentibus albo-pruinatis utrinque concoloribus marginibus subroseis, floribus in paniculas pedunculatas terminales subcorymbosas dispositis breviter pedicellatis, calycis minuti segmentis triangularibus, corollæ $\frac{1}{2}$ -poll. longæ tubo tereti infra medium flavo dein lobisque oblongis obtusis recurvis flammeis, filamentis brevibus, antheris parvis seriei superioris vix exsertis, disci squamulis lineari-oblongis obtusis, carpellis angustis tubum corollæ æquantibus in stylos graciles attenuatis, stigmatibus minutis.

K. farinacea, *Balf. fil. in Proc. Roy. Soc. Edinb.* vol. xi. (1882) p. 512; *et in Tans.* vol. xxi. (1888) p. 91.

K. farinacea is one of the many new and interesting plants discovered in Socotra by Dr. I. B. Balfour, during his exploration of that island in 1880, where he describes it as being common in crevices of limestone rocks. It is one of four species found there by him, of which three were new to science. More recently, in 1897, seeds of it, from which the specimen here figured was raised, were sent to the Royal Gardens, Kew, by the late Mr. Theodore Bent. It flowered in a greenhouse in August, 1900, and continued flowering for two months.

Descr.—A stout, erect, sparingly branched, succulent shrub, with mealy white branches, leaves, and panicle. *Leaves* crowded towards the ends of the branches, sessile, spreading, one and a half to two inches long, obovate, narrowed at the base, concave, quite entire, tip rounded, very thick, pale green beneath the thin covering of mealy pubescence, margins faintly rosy. *Panicle* terminal, subcorymbiform; rhachis and branches stout; bracts small, oblong, fleshy. *Flowers* shortly pedicelled, erect, one-half to three-quarters of an inch long. *Calyx* minute, obtusely four-lobed. *Corolla* narrowly campanulate; tube about

APRIL 1ST, 1901.

half an inch long, terete, yellow below the middle, bright scarlet above it, as are the ovate, sub-acute, spreading lobes. *Stamens* small, the upper series hardly exserted; filaments very short; anthers broadly oblong. *Scales* of the disk small, linear-oblong. *Carpels* narrowed into slender styles with minute stigmas.—*J. D. H.*

Fig. 1, portion of leaf with mealy pubescence; 2, calyx; 3, corolla laid open; 4, scales of the disk and carpels:—*all enlarged.*



M.S. del. J.N. Fish lith.

W. & A. Brown, Day A. Son. lith.

I. Reeve & Co. London.

TAB. 7595.

KALANCHOE FLAMMEA.

Native of Somaliland.

Nat. Ord. CRASSULACEÆ.

Genus KALANCHOE, *Adans.*; (*Benth. & Hook. f. Gen. Plant.* vol. i. p. 659.)

KALANCHOE *flammea*; perennis, pedalis, ramosa, foliosa, glaberrima, foliis obovato-oblongis obovatisve in petiolum crassum angustatis crasse carnosis apice rotundatis integerrimis v. obscure repando-crenatis pallide viridibus vix glaucis, cymis corymbosis densifloris 4-5-poll. longis et latis, pedunculo 4-5-pollicari, ramis primariis 2-pollicaribus, pedicellis $\frac{1}{6}$ - $\frac{1}{4}$ pollicaribus, bracteis parvis linearibus obtusiusculis caducis, calycis 4-partiti segmentis $\frac{1}{6}$ poll. longis lineari-lanceolatis subacutis basi liberis, corolla tubo calyce duplo longiore 4-gono flavido, limbi $\frac{3}{4}$ poll. lati lobis late ovatis acutis rubro-aurantiacis, glandulis disci linearibus $\frac{1}{12}$ poll. longis, carpellis $\frac{1}{4}$ -poll. longis, stylis brevibus.

K. *flammea*, *Stapf in Kew Bulletin*, 1897, p. 266.

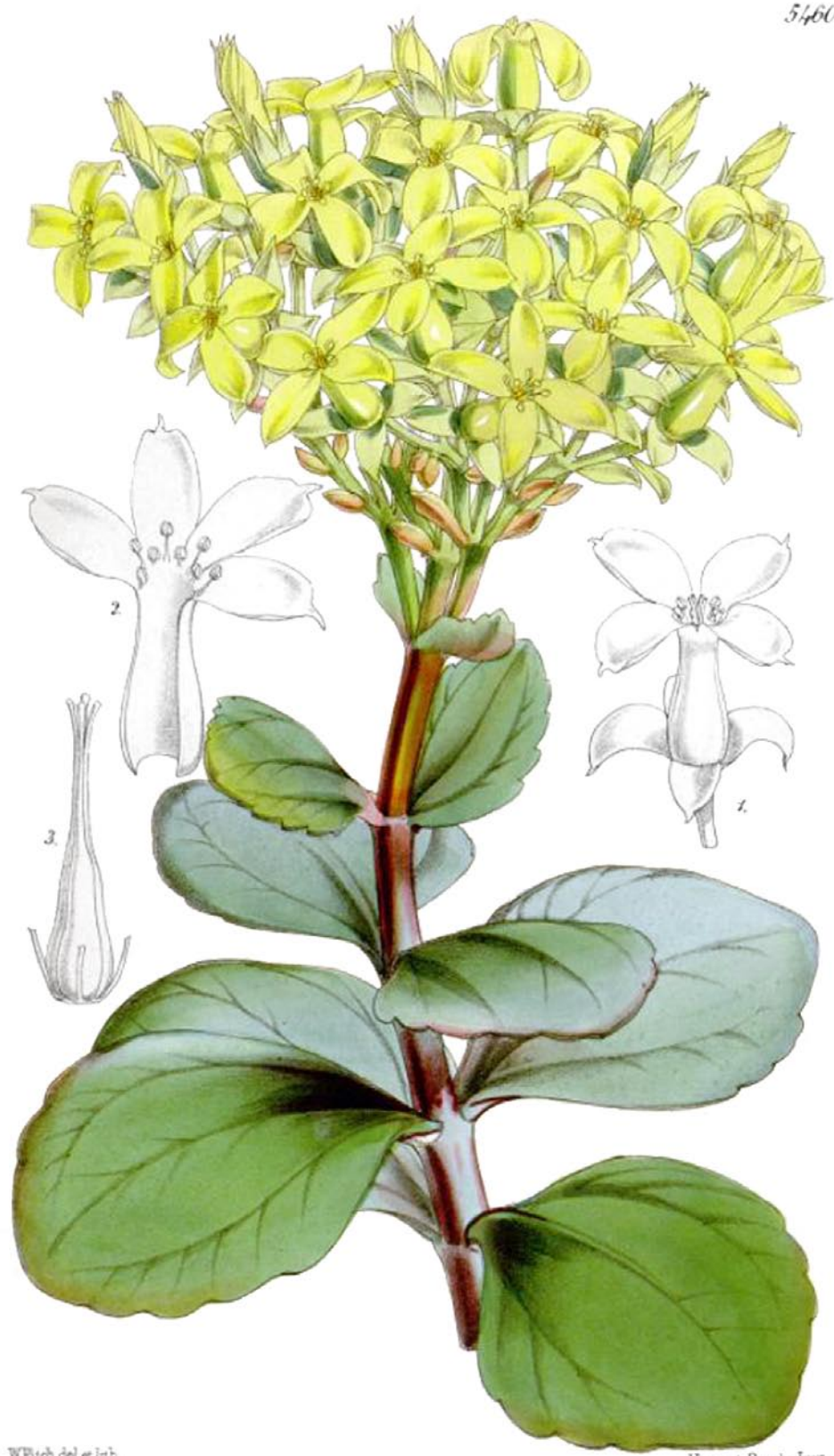
The genus *Kalanchoe* numbers about fifty known species, chiefly African, with a few Indian, and will probably be largely increased, now that the collection of plants in tropical Africa is being zealously prosecuted. Only three species have been hitherto figured in this work, namely, *K. crenata*, DC. (*Cotyledon crenata*, tab. 1436); *K. marmorata*, t. 7333, and *K. grandiflora*, t. 5460, none of which can compare with *K. flammea*, whether in the colour of the flower, or in the length of time that the plant continues in flower (two months), on which account it proves to be a notable addition to the Succulent House flora.

Seeds of *K. flammea*, collected in Somaliland by Mrs. Lort Phillips and Miss Edith Cole, were presented to the Royal Gardens, Kew, in May, 1895, the plants raised from which flowered in a sunny green-house in July, 1897, and ripened their seeds.

Descr.—Whole plant a foot high, stout, erect, branching, pale green, but hardly glaucous. *Leaves* two to three and a half inches long, including the stout petiole, obovate, or obovate-oblong, thickly fleshy, quite entire, or obscurely crenulate. *Cyme* corymbiform, four to five inches long and broad; peduncle four to five inches long, strict, erect,
MAY 1ST, 1898.

primary branches one to two inches long, many-fld.; bracts small, linear, obtuse, caducous; pedicel one-sixth to one-fourth of an inch long. *Calyx* one-sixth of an inch long, segments linear, sub-acute. *Corolla-tube* two to three times as long as the calyx, sub-tetragonous, pale yellow; limb three-fourths of an inch broad, lobes broadly triangular-ovate, sub-acute, bright orange-red; glands of the disk linear, erect. *Stamens* very small, biseriate. *Styles* short.—*J. D. H.*

Fig. 1, Calyx, disk-glands, and ovary; 2, corolla laid open; 3, stamen:—*All enlarged.*



KALANCHOE GRANDIFLORA.

Large-flowered Kalanchoe.

Nat. Ord. CRASSULACEÆ.—OCTANDRIA MONOGYNIA.

Gen. Char. Calyx quadripartitus; laciniis angustis acutis, subdistantibus. Corolla perigyna, hypocraterimorpha, tubo cylindræo, limbo quadripartito, patente. Stamina 8, imo corollæ tubo inserta, inclusa. Squamulæ hypogynæ, lineares. Ovaria 4, libera, unilocularia; ovulis ad suturam ventralem plurimis. Capsule folliculares, liberæ, intus longitudinaliter dehiscentes.—Suffrutices carnosæ, in Africa boreali-orientali et Capensi, in Asia tropica et Brasilia indigeni; foliis oppositis, irregulariter imparipinnatisectis v. ovatis, dentatis, crassis; floribus cymoso-paniculatis, laxis, flavis v. rarius rubescentibus aut albidis. Endl.

KALANCHOE *grandiflora*; glabra, glauca, foliis late obovatis sessilibus trinerviis sinuato-crenatis, cymis terminalibus corymbosis subtaxifloris, sepalis recurvo-patentibus, corollæ segmentis ovalibus apice uncinato-mucronatis.

KALANCHOE *grandiflora*. Wall. *Cat. n.* 7226. Wight, *Cat. n.* 1174. Wight et Arn. *Prodr. Fl. Penins. Ind. Orient. p.* 359. Wight, *Illustr. v. 1. t.* 111.

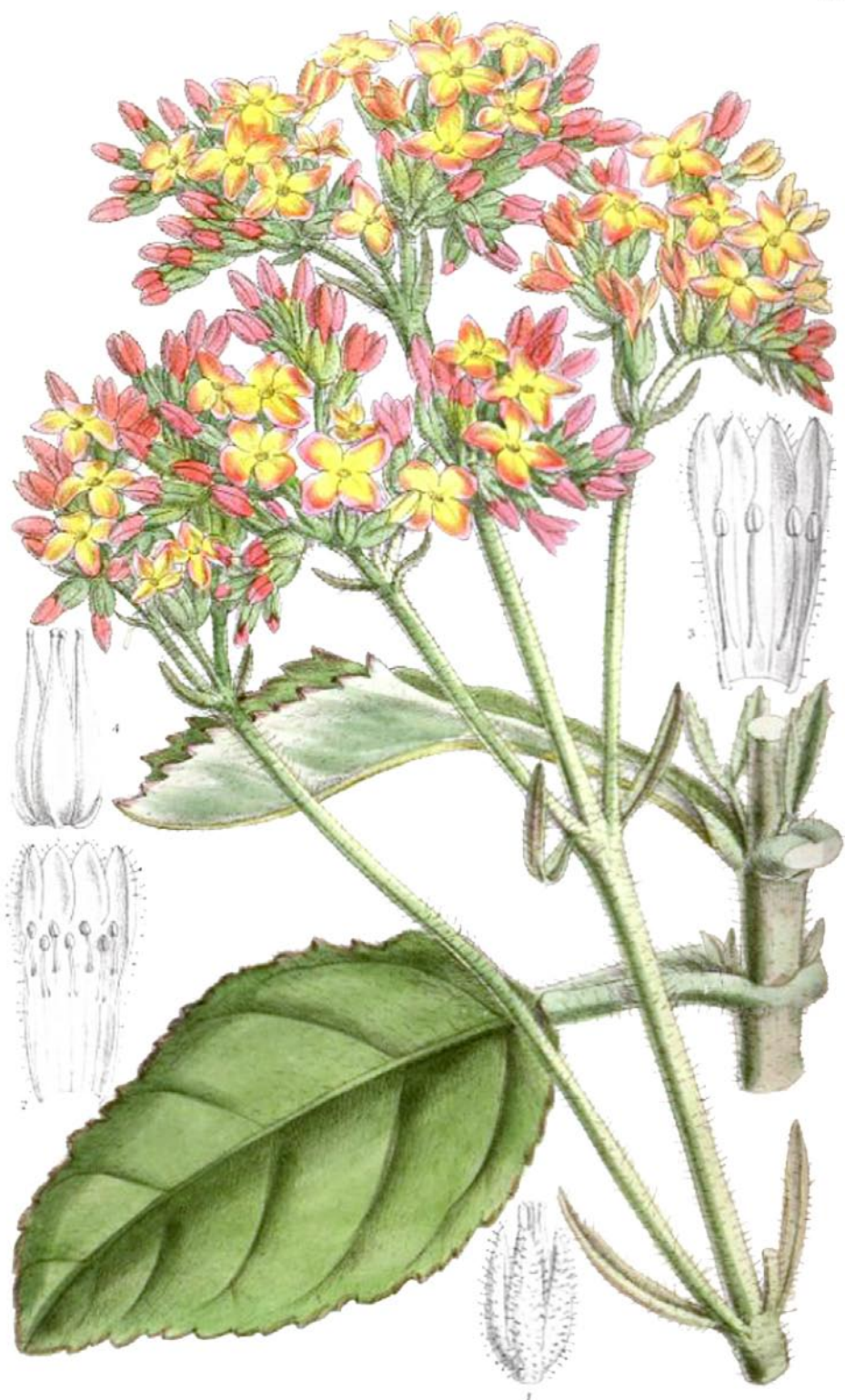
KALANCHOE *Wightiana*. Wall. *Cat.* 7225.

The genus *Kalanchoe*, closely allied in general structure to *Bryophyllum* (of which we lately figured a new species at our Tab. 5147), contains nine species, according to De Candolle, not however including our present species, which was first distinguished and named by Dr. Wallich, but clearly characterized by Wight and Arnott, in their ‘Prodromus of the Botany of the Madras Peninsula,’ and afterwards figured in Wight’s ‘Illustrations of Indian Botany.’ It is a native of the Mysore country, where it appears to be plentiful, though, as far as we yet know, it is peculiar to that region. Our plants were raised from seeds sent to us in 1863, and flowered in a greenhouse devoted to succulent plants, in May, 1864.

DESCR. *Stem*, as far as I know, simple, but subarborescent, succulent rather than woody, and, as Dr. Wight assures us, AUGUST 1ST, 1864.

often attaining a large size. *Leaves* also succulent and glaucous, two to three inches long, opposite, sessile, obovate or sub-rhomboidal, with three principal longitudinal nerves, and lesser ones branching off from them; the foliage becomes gradually smaller up the stem, as they approach the flowers; the margins coarsely sinuato-crenate. *Cyme* terminal, subsessile, many-flowered, scarcely pedunculate. *Flowers* rather large ; peduncles bracteate. *Calyx* of four, deep, ovate, reflexed *sepals*. *Corollas* bright-yellow, hypocrateriform; *tube* elongated, swelling at the base, so as to be bottle-shaped; *limb* of four, spreading, reflexed *sepals*, uncinato-mucronate. *Stamens* eight, four long and four short, inserted at the faux of the corolla; *filaments*, four long and four short. *Ovaries* four, slightly united. *Styles* four, glandular at the apex, elongated, erect.

Fig. 1. A flower of *Kalanchoe grandiflora*, Wall. 2. Corolla laid open. 3. Pistils and hypogynous glands:—*magnified*.



M.B. Lee / J.N.P. Gubbins (eds.)

Vincent Browne, Day & Son. 3

J. H. Dunning, Jr. (NOI, London)

TAB. 7871.

KALANCHOE Kirkii.

Native of Nyassaland.

Nat. Ord. CRASSULACEÆ.

Genus KALANCHOE, *Adans.*; (*Benth. & Hook. f. Gen. Plant.* vol. i. p. 659.)

KALANCHOE, *Kirkii*; caule robusto tereti laxe glanduloso-piloso simplici v. ramoso, foliis, oppositis petiolatis patenti-decurvis 3–4 poll. longis ovatis oblongis v. ovato-lanceolatis obtusis crenatis carnosius utrinque pilosulis basi rotundatis, nervis utrinque 5–6, supremis angustioribus floralibus linearibus supra læte viridibus subtus pallidis, petiolo valido supra concavo, cymis trichotomis subcorymbosis, glanduloso-pubescentibus multifloris floribus confertis sessilibus secundis, bracteis linearibus, bacteolis subulatis, sepalis $\frac{1}{4}$ poll. longis lineari-oblongis subacutis liberis glanduloso-pubescentibus, corollæ tubo $\frac{1}{3}$ poll. longo. limbi $\frac{1}{3}$ – $\frac{1}{2}$ poll. diam. lobis oblongi. aurantiaco-rubris, staminibus 8 v. 10 biseriatis v. 4 uniseriatis antheris inclusis, disci glandulis subulatis, carpellis 3–4 in stylos breves attenuatis, stigmatibus capitellatis.

K. *Kirkii*, *N.E. Br. is Gard. Chron.* 1902, vol. ii. p. 110.

K. *coccinea*, *Welw.* var. *subsessilis*, *Britt. in Oliv. Fl. Trop. Afr.* vol. ii. p. 395.

Species of *Kalanchoe* of horticultural as well as botanical interest have been introduced into cultivation of late with remarkable rapidity. Of the nine species figured in the *Botanical Magazine*, seven have been introduced within the last ten years; three from N.E. tropical Africa (Somaliland), *K. marmorata*, t. 7333, *K. flamma*, t. 7595, and *K. somaliensis*, t. 7831; one, *S. Kirkii*, from Central Africa; one from S. Africa, *K. thyrsiflora*, t. 7678, and two from Arabia and Socotra, *K. Benti*, t. 7765, and *K. farinacea*, t. 7769.

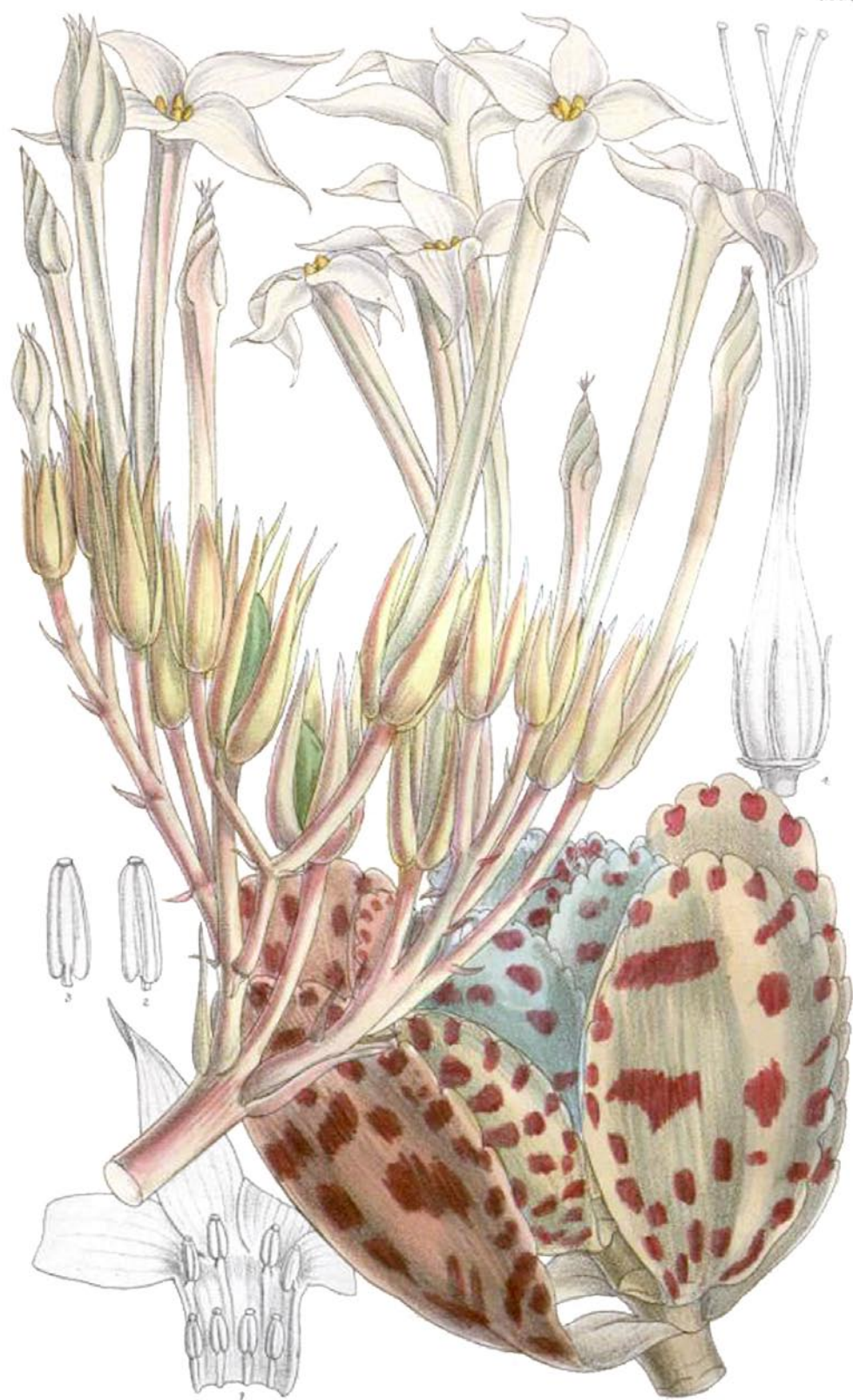
K. Kirkii is allied to *K. crenata*, Haw. (*Cotyledon crenata*, t. 1436), a native of Sierra Leone, with which it is nearly identical in habit, foliage, calyx, and pubescence, but. *K. crenata* differs in the much longer and narrower tube of the golden-yellow corolla. According to Mr. N. E. Brown, it appears to be the same as a plant discovered by Sir John Kirk, G.C.M.G., in 1858, near Shupauga, on the Zambesi River, in Portuguese E. Africa, and found afterwards in Nyassaland by Mr. Meller in 1861. The specimen here figured was raised from seed in the garden of Earl Fitzwilliam, Wentworth, Rotherham, from whom

DECEMBER 1ST, 1902

a cutting was received at the Royal Gardens, Kew, in 1808, which flowered freely in April, 1902.

Descr.—Whole plant more or less glandular-pubescent, with long, spreading hairs. *Stem* tall, simple or sparingly branched, stout, terete. *Leave* opposite, spreading and decurved, oblong or ovate-lanceolate, obtuse, crenate, fleshy, slightly hairy, base rounded, upper narrower; floral linear, bright green above, paler beneath; petiole very stout, concave. *Cyme* terminal, trichotomously branched, glandular-pubescent, many-flowered; bracts linear; bracteoles subulate. *Flowers* crowded, sessile, secund. *Sepals* free, a quarter of an inch long, linear-oblong, acute, glandular-pubescent. *Corolla-tube* a third of an inch long; limb nearly half an inch broad, segments oblong, orange-red. *Stamens* eight or ten in two series, or four in one series; anthers included. *Disk-glands* subulate. *Carpels* three or four, narrowed into short styles with capitellate stigmas.—*J.D.H.*

Fig. 1, calyx; 2, octandrous and tetrandrous, corolla. laid open; 4. disk-glands and carpels:—*all enlarged.*



TAB. 7333.

KALANCHOE MARMORATA.

Native of Abyssinia.

Nat. Ord. CRASSULACEÆ.

Genus KALANCHOE, *Adans.*; (*Benth. & Hook. f. Gen. Plant.* vol. i. p. 659.)

KALANCHOE *marmorata*; glaberrima, caule robusto ramoso tereti, foliis magnis crassissimis obovatis v. obovato-oblongis subsessilibus crenatis maculatis apice rotundatis, cymis trichotomis, floribus crasse pedicellatis pedunculis pedicellisque albo virescentibus v. purpurascentibus, calycis laciniis pollicaribus lanceolatis flavo-viridibus, corolla tubo 4-pollicari angulato basi inflato, limbi 2-poll. lati lobis ovatis caudato-acuminatis albis, squamulis linearibus, antheris sessilibus biseriatis, stylis filiformibus.

K. marmorata, *Baker in Gard. Chron.* (1892) vol. ii. p. 300.

K. grandiflora, *A. Rice. Tent. Fl. Abyss.* vol. i. p. 310. *Sprenger in Gartenflora*, t. 1394. *Walp. Ann. Bot.* vol. ii. p. 668 (*non Wight & Arn.*).

Specimens of this noble species were sent to Kew for figuring in this work by my friend Thos. Hanbury, Esq., F.L.S., from his garden at Palazzo Orengo, Mortola, near Ventimiglia. Unfortunately an octavo plate does not admit of a full-sized figure of the fully developed leaves, which attain a length of eight to ten inches by four to five in breadth, are obovate, narrowed into a very broad short petiole, and are of a light green blotched with purple; the midrib in the upper surface towards the base bears sometimes short thick ear-shaped lobes.

K. marmorata was discovered in 1839 or thereabouts by M. Petit, a botanist sent out with a French expedition of discovery into Abyssinia, in the province of Ifat, and was published by A. Richard as *K. grandiflora*, overlooking the fact that this name had been previously applied by Wight to an Indian species which is figured on Plate 5460 of this work.

Mr. Hanbury sends me the following information regarding his plant, communicated to him by Professor Penzig, Director of the "Genoa Botanical Gardens." *K.*

JANUARY 1ST, 1894.

marmorata was found, firstly in seed only, by Professor Schweinfurth, on Mt. Lalamba, near Keren, in March, 1891; and on a second expedition to the same mountain the specimens were procured which were received at the Genoa Gardens. The plant grew at the fort, and in the fissures of a coarse dark granite, north of the fort, and at above 9500 feet alt. The species sustains, dryness so well, that specimens collected March 20th, and packed in a little moss, bore the long journey very well, and arrived (at Genoa) in a capital state on the 1st May."

Mr. Hanbury further informs me that *K. marmorata* has not flowered at Genoa, but has abundantly in the drier and sunnier climate of Mortola.

Descr.—A very stout low branching shrub. *Leaves* opposite, six to eight inches long, obovate, narrowed into a short broad petiole, pale green blotched with purple, margins undulate or crenate; young smaller, orange-green with blood-red spots, and more deeply crenate. *Flowers* in large branched compound panicles; peduncles stout, pedicels one to one and a half inch long, and small subulate bracts pale flesh-coloured. *Sepals* one to one and a half inch long, lanceolate, erect. *Corolla* creamy-white, tube three inches long or more, slender, obscurely angled and twisted; lobes ovate, caudate-acuminate. *Stamens* eight, in two rows within the mouth of the corolla, filaments adnate to the corolla; anthers oblong, tipped by the connective. *Disk* of 4 erect threads. Ovary ovate-lanceolate, tapering into 4 filiform styles with small capitate stigmas.—*J. D. H.*

Fig. 1, Upper part of corolla laid open, showing the stamens; 2 and 3, anthers; 4, ovary and disk threads:—*All enlarged.*

TAB. 7831.

KALANCHOE SOMALIENSIS.

Native of Somaliland.

Nat. Ord. CRASSULACEÆ.

Genus KALANCHOE, *Adans.*; (*Benth. & Hook. f. Gen. Plant.* vol. i. p. 659.)

KALANCHOE *somaliensis*; glaberrima, caule robusto tereti ramoso foliisque pallide glauco-viridibus, foliis inferioribus 6 poll. longis basi lata sessilibus obovatis apice rotundatis crenato-serrulatis crasse coriaceis utrinque concoloribus, nervis obecuris, superioribus lineari-oblongis apice crenatis, cyma ampla trichotoma 6–10 poll. alta et lata. ramis ramulisque elongatis robustis, bracteis $\frac{1}{4}$ – $\frac{1}{2}$ poll. longis ovatis oblongis obovatisve patulis integris albo-virescentibus, pedicellus $\frac{1}{2}$ –1 poll. longis, alabastris roseo-tinctis sepalis erectis, lanceolatis acutis $\frac{1}{2}$ – $\frac{2}{3}$ poll. longis pallide fuco-rubris, corolla alba flavo tincta, tubo $2\frac{1}{2}$ pollicari, limbi segmentis ovato-lanceolatis acuminatis, antheris sessilibus oblongis, disci processus filiformibus sepalis paullo longioribus, carpellis angustis, stylis filiformibus elongatis.

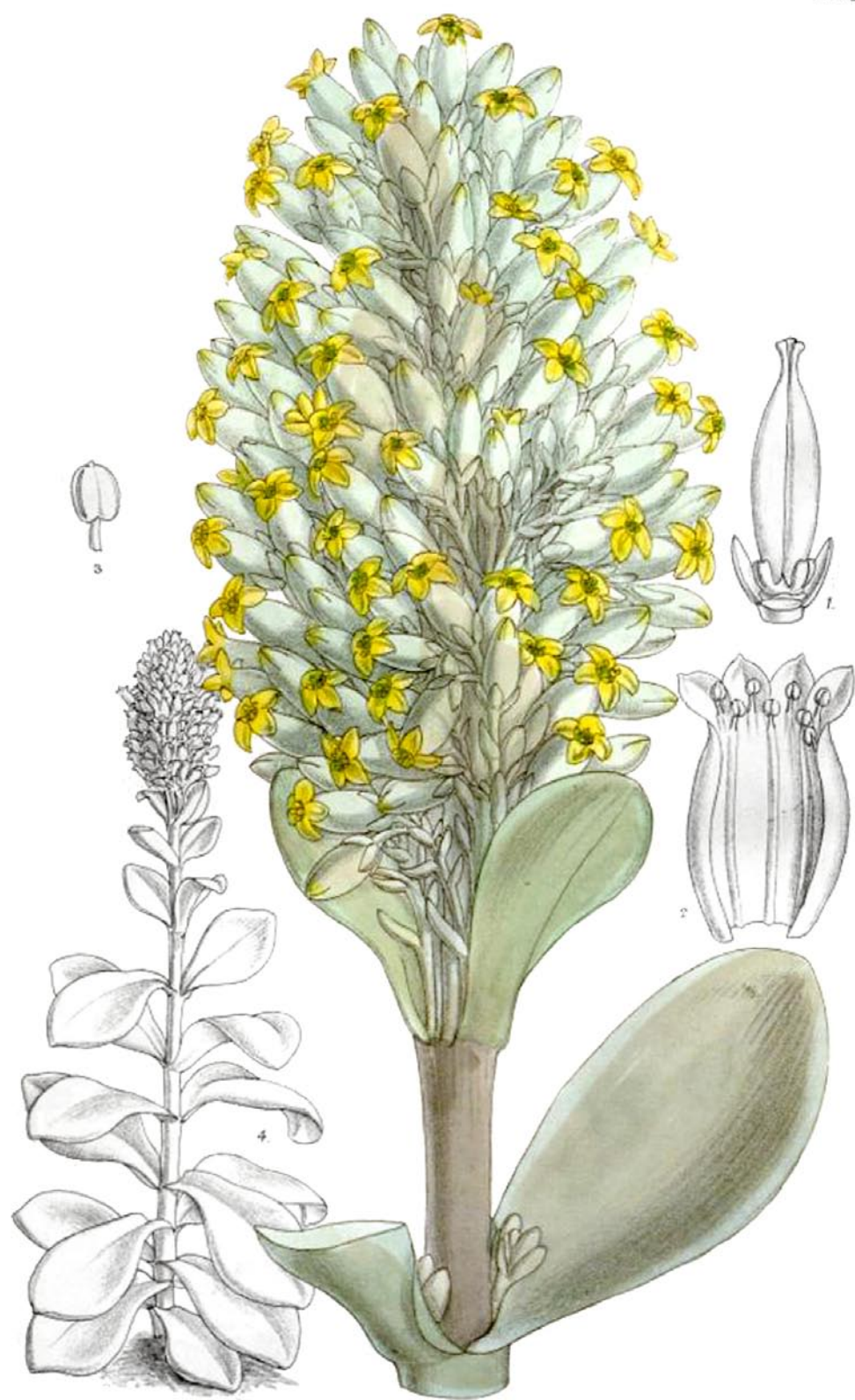
The plant from which the accompanying drawing was made was, as Sir Edmund Loder informs me, collected by himself in 1890, while hunting for big game in the Gulls range, near Argan, in Somaliland. He adds that on the same day he killed a specimen of the Greater Koodoo and a Lion. It flowered in a warm house of the Royal Gardens, Kew, in February, 1901. Specimens of the same species, collected by Miss Edith Cole, when accompanying Mr. and Mrs. Lort Phillips in the same country, are in the Herbarium of the Royal Gardens. *K. somaliensis* is the sixth species of the genus figured in this work within the last ten years, of which two, *K. flammea*, Stapf, t. 7595, and that here figured are natives of Somaliland; one, *K. marmorata*, t. 7333, is Abyssinian; two are Arabian, *K. Bentii*, C. H. Wright, t. 7765, and *K. farinacea*, Balf. f. t. 7769; and one, *K. thyrsiflora*, Harv. & Sond., t. 7678, is S. African.

Descr.—An erect, stout, branching shrub, of a uniformly glaucous, greenish-white colour, except the flowers. *Leaves* four to six inches long, sessile by a broad base, obovate or oblong-obovate, crenate-serrulate, tip rounded, thickly fleshy, nerves very indistinct, uppermost at the base of the inflorescence much smaller, linear-oblong, entire or

APRIL 1ST, 1902.

crenate at the tip. *Cyme* very large, open, six to ten inches long and broad, trichotomously branched; bracts one quarter to one inch long, oblong, ovate or obovate, fleshy; pedicels very variable in length. *Sepals* one half to two-thirds of an inch long, erect, lanceolate, acute. *Corolla* white, faintly tinged with yellow; tube two and a half inches long, pale rose-coloured in bud; segments of limb two-thirds of an inch long, ovate-lanceolate, acuminate. *Anthers* oblong, sub-sessile. *Disk* with four erect filaments rather longer than the sepals. *Styles* very long and slender.—*J. D. H.*

Fig. 1, calyx, filaments of the disk and pistil; 2 and 3, anthers;—*all enlarged.*



TAB. 7678.

KALANCHOE THYRSIFLORA.

Native of South Africa.

Nat. Ord. CRASSULACEÆ.

Genus KALANCHOE, *Adans.*; (*Benth. & Hook. f. Gen. Plant.* vol. i. p. 659.)

KALANCHOE *thyrsiflora*; herba crasse carnosâ, glaberrima, glauca, caule erecto tereti folioso, foliis decussatim oppositis sessilibus obovato-spathulatis obtusis integerrimis enerviis utrinque concoloribus inferioribus 3–4 poll. longis superioribus gradatim minoribus, inflorescentia terminali sessili oblonga cylindracea 6 poll. longa glauca e racemulis suberectis axi communi densissime confertis constante, floribus $\frac{1}{2}$ poll. longis breviter pedicellatis, bracteolis parvis oblongis obtusis, sepalis corollâ ter brevioribus linearibus obtusis, corollæ tubo ovoideo-oblongo tereti glauco-viridi ore constricto, lobis 4 parvis orbiculari-ovatis subacuti-patenti-recurvis intus aureis, disci glandulis oblongis retusis, staminibus 8 ore corollæ biseriatis, filamentis brevibus, antheris fere rotundatis apiculatis, carpellis 3 elongatis in stylos breves attenuatis, stigmatibus parvis subsimplicibus truncatis.

K. thyrsiflora, *Harv. & Sond. Fl. Capens.* vol. ii. p. 380.

K. alternans, *Eckl. & Zey. ex Harv. & Sond. l.c.*

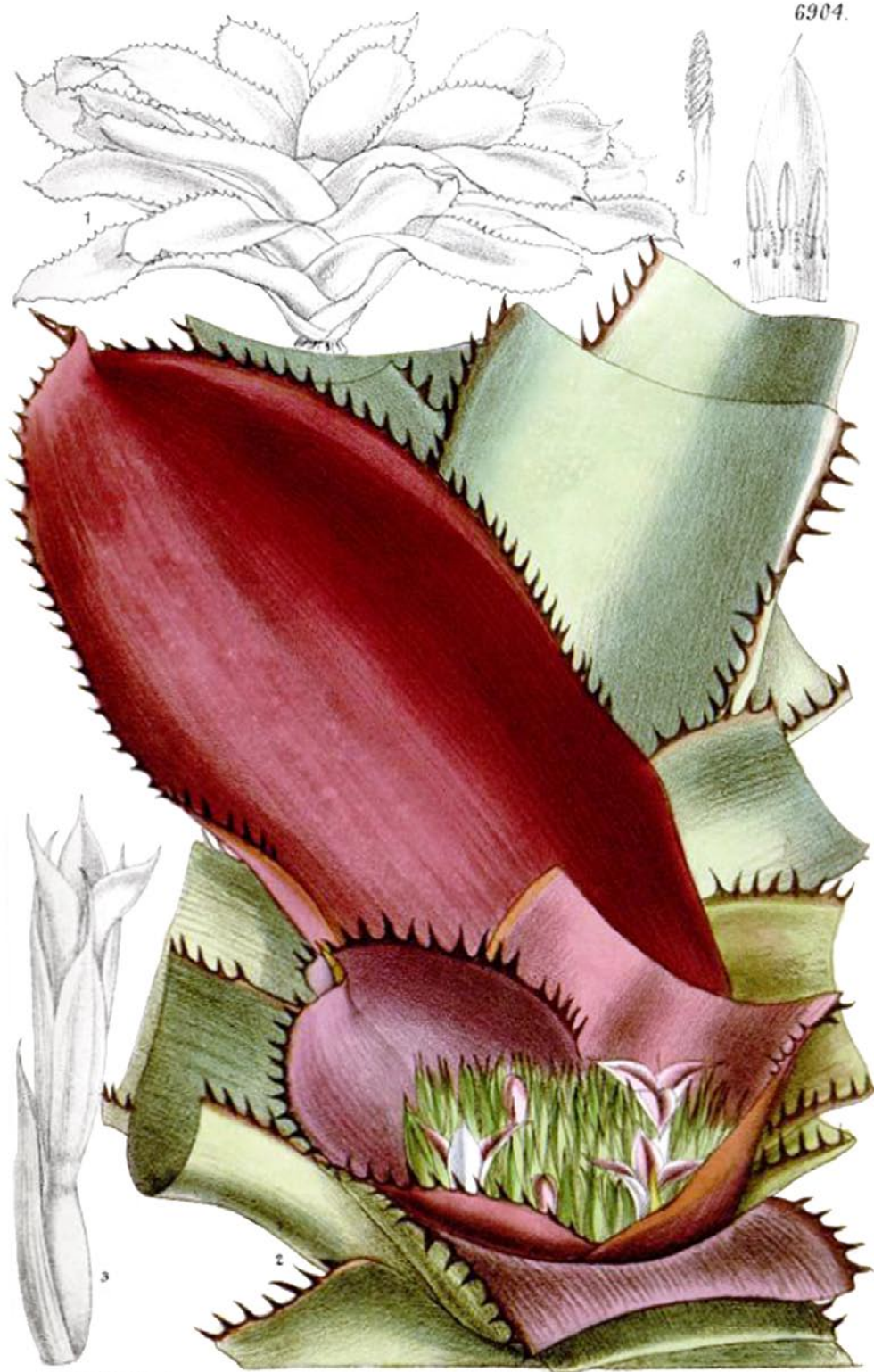
Kalanchoe thyrsiflora was introduced from the Cape of Good Hope into the gardens of Commendatore Hanbury, La Mortola, by whom seeds were distributed to various botanical gardens in 1891. It has been in cultivation at the Royal Gardens, Kew, since 1891, and was first flowered in the Cambridge University Botanical Gardens by Mr. Lynch, to whom I am indebted for sending me the fine specimen here figured. It is a native of the eastern districts of the Cape Colony, where it was found first by Ecklon & Zeyher. There are also specimens in the New Herbarium from the Kei and Vaal rivers, from Basutoland, and from Inanda in Natal. In its native country it flowers in May; in England, in December.

Descr.—A very stout, erect, pale glaucous green, quite glabrous, leafy herb, one to two and a half feet high. *Stem* simple, terete, smooth, nearly an inch in diameter below the middle, and half an inch below the inflorescence. *Leaves* decussately opposite, in rather close pairs, lowest three to four inches long, gradually smaller upwards, sessile, obovate-spathulate, quite entire, tip rounded, thick,

OCTOBER 1ST, 1899.

fleshy, uniformly coloured on both surfaces. *Inflorescence* an erect, sessile, cylindric, thyriform, most dense-flowered glaucous panicle, six to twelve inches high, and three in diameter, formed of crowded, few-flowered, bracteate racemes; bracts oblong or cylindric, obtuse. *Flowers* shortly pedicelled, about half an inch long. *Sepals* about one-third the length of the corolla, linear, obtuse, fleshy. *Corolla-tube* ovoid-oblong, terete, glaucous green, mouth constricted; lobes small, broadly ovate, spreading and recurved, bright yellow within. *Stamens* eight, in two series at the mouth of the corolla; filaments very short, anthers small, broad. Glands oblong, truncate, retuse. *Carpels* three, narrowed into short, recurved styles, with truncate stigmas.—*J. D. H.*

Fig. 1, Top of pedicel with two sepals, hypogynous glands and ovaries; 2, corolla laid open; 3, stamen:—*All enlarged.*



M. S. del. J. N. Fitch lith.

Vincent Brooks, Day & Son lith.

L. Reeve & Co. London.

TAB. 6904.

KARATAS ACANTHOCRATER.

Native of Brazil.

Nat. Ord. BROMELIACEÆ.—Tribe BROMELIÆÆ.

Genus KARATAS, *Adans.*; (*Benth. et Hook. f. Gen. Pl.* vol. iii. p. 660.)

KARATAS (*Nidularium*) *acanthocrater*; acaulis, foliis 20–30 loratis obtusis cuspidatis patulis rigidulis facie viridibus sæpe maculatis dorso tenuiter lepidotis margine atrobrunneis spinis crebris validia ascendentibus armatis, foliis interioribus brevioribus pulchre purpureo suffusis, floribus pluribus in capitulum globosum centalem aggregatis, bracteis lanceolatis viridibus, ovario cylindrico, calycis segmentis oblongo-lanceolatis cuspidatis, corolla tubo cylindrico segmentis ovatis cuspidatis falcatis violaceis, staminibus ad corolla faucem uniseriatis filamentis brevibus antheris oblongis, stylo elongato, stigmatibus spiraliter convolutis.

Nidularium acanthocrater, *Morreen in Belg. Hort.* vol. xxxiv. (1884), p. 140, tab. 9.

This new species is one of the finest of the curious Bromeliaceæ with a nest-like habit of growth. In general appearance it closely resembles the three best-known garden species, *N. fulgens*, *N. Meyendorffii*, and *N. Innocentii*, but the colouring of the inner leaves, instead of being red, is purple. There are two varieties, one (*Plutonis*) in which the purple shades off in the direction of red, and the other (*Proserpinæ*) in which it has a bluish tinge. The plant is a native of the forests of South Brazil, and was first sent to Europe by the indefatigable Dr. Glaziou in 1877. It flowered for the first time in the Botanic Garden of Liege in 1881, and a stock was raised and distributed in commerce by M. Jacob-Makoy and Co. shortly after. Our drawing was made from a plant that flowered at Kew in May, 1886. *Nidularium* is a name which is universally used as generic in gardens, but it was reduced to a section of *Karatas* by Mr. Bentham.

DESCR. Acaulescent. *Leaves* twenty or thirty, arranged in a dense rosette, spreading, lorate, cuspidate, the outer a foot long, two and a half or three inches broad at the middle, three or four inches at the dilated base, firm in texture, green and often spotted with brown-black on the

NOV. 1ST, 1886.

face, slightly lepidote on the back, margined with a brown-black line, and furnished with copious large ascending prickles of the same colour. *Inner leaves* reduced in size, and flushed with purple towards the base; innermost small and altogether purple. *Capitulum* dense, many-flowered, sessile in the centre of the rosette of leaves; bracts lanceolate, green. *Ovary* cylindrical; segments of the calyx-limb oblong-lanceolate, cuspidate. *Corolla* a little longer than the calyx-limb; tube cylindrical; segments falcate, ovate cuspidate, bright lilac. *Stamens* arranged in a single row at the throat of the corolla-tube; filaments very short; anthers oblong. *Style* elongated; stigmas spirally twisted.—*J. G. Baker.*

Fig. 1, The whole plant, *much reduced*; 2, a portion of a plant, life-size; 3, a single flower, complete, with its subtending bract; 4, portion of corolla, cut open, showing three stamens; 5, summit of style, with stigmas:—*all enlarged.*



M.S. del. J.N. Fitch. lith.

L. Reeve & Co. London.

Vincent Brooks, Day & Son. Imp.

TAB. 7570.

KNIPHOFIA BREVIFLORA.

Native of Natal and Orange Free State.

Nat. Ord. LILIACEÆ.—Tribe HEMEROCALLIDEÆ.

Genus KNIPHOFIA, *Manch.*; (*Benth. & Hook. f. Gen. Plant.* vol. iii. p. 775.)

KNIPHOFIA *breviflora*; foliis linearibus longe acuminatis integris sordide viridibus dorso acute carinatis, pedunculo stricto erecto foliis æquilongo, racemo oblongo-cylindrico supra basin denso, pedicellis brevibus, inferioribus cernuis, bracteis lanceolatis, perianthio parvo subcylindrico pallide luteo lobis ovatis, staminibus demum leviter exsertis, stylo staminibus longiore, fructu parvo globoso.

K. *breviflora*, *Harv.*; *Baker in Journ. Linn. Soc.* vol. xi. 361; *Fl. Cap.* vol. vi. p. 277.)

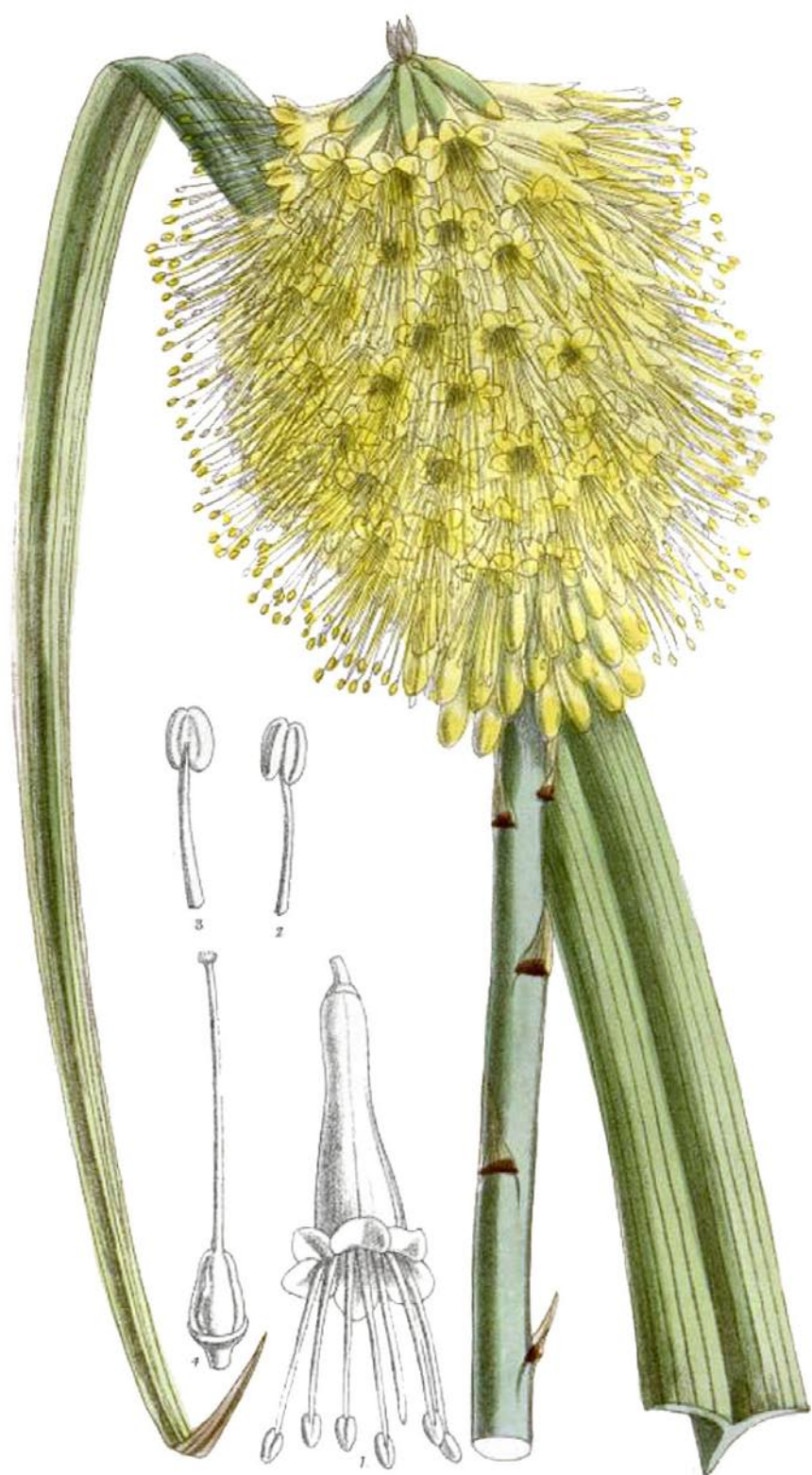
There are now thirty-five species of this genus known at the Cape, and thirteen species in Tropical Africa, only one of which is common to both areas. The present is one of the smallest known species, being nearly allied to *K. modesta*, Baker (*Bot. Mag.* tab. 7293), but with the flowers bright yellow, instead of white. It was first gathered in 1862 by Mr. Thomas Cooper in the Orange Free State, and was named in manuscript by Professor Harvey shortly before his death. It was again collected in Natal in 1895 by Mr. J. Medley Wood, and by him introduced into cultivation through Mr. Max Leichtlin of Baden Baden. Our drawing was made from a plant that flowered at Kew in October, 1896. As it was found in Natal at an elevation of between five thousand and six thousand feet above sea-level, no doubt it will be perfectly hardy. The Natal plant is rather more robust, and the flowers are a little larger than in that from the Orange Free State, but I think they can only be regarded as forms of a single species.

Descr.—*Leaves* narrowly linear, one foot and a half or two feet long, tapering gradually to a long point, dull green, acutely keeled on the back, entire on the margin. *Peduncle* stiffly erect, as long as the leaves. *Raceme*

DECEMBER 1ST, 1897.

dense above the base, oblong-cylindrical, three or four inches long; upper flowers ascending, lower drooping; pedicels very short; bracts scariosse, lanceolate. *Perianth* bright, pale yellow, subcylindrical, a quarter or a third of an inch long; lobes short, ovate. *Stamens* finally just exerted. *Style* finally overtopping the anthers. *Fruit* small, globose—*J. G. Baker*.

Fig. 1, Cross section of leaf; 2, bract; 3, an entire flower; 4, front view of anther; 5, back view of anther:—*All more or less enlarged*.



M.S. del. J. N. Fitch lith.

J. Reeve & Co London.

Vincosa Brooks Day & Son. Imp.

TAB. 8545.

KNIPHOFIA carinata.

South Africa.

LILIACEAE. Tribe HEMEROCALLEAE.

KNIPHOFIA, *Moench; Benth. et Book. f. Gen. Plant.* vol. ii. p. 775; *A. Berger in Engl. Pflanzenreich, Lil.-Asphod.-Aloin.* p. 31.

Kniphofia carinata, *C. H. Wright*; species *K. comosae*, Hochst., affinis, filamentis luteis, perianthio vix duplo longioribus differt.

Herba perennis. *Folia* 7·5 dm. longa, e basi 2·5 cm. lata ad apicem acuminatum gradatim attenuata, supra profunde canaliculata, subtus acute carinata tenuia, glabra, marginibus levibus anguste albo-cartilagineis instructa *Scapus* cylindricus; bracteae lanceolatae, longe acuminate scariosae, 8 mm. longae, 2 mm. latae; racemus 15 cm. longus, densiflorus; pedicelli breves; flores nutantes. *Perianthitum* claro-luteum; tubus anguste urceolatus, supra ovarium leviter constrictus, 18 mm. longus, prope apicem 5 mm. diametro; lobi erecto-patentes, obtusi, 3 mm. longi, 3·5 mm. lati. *Filamenta* circiter 30 mm. longa, perianthio concolora; antherae 3 mm. longae. *Ovarium* ovoideum, 4 mm. longum, trilobum, leve; stylus subulatus, staminibus paullo longior. *Ovula* plura.—C. H. WRIGHT.

The *Kniphofia* which we depict is a South African species for the introduction of which horticulture is indebted to Miss Ayliff of Rose Cottage, Grahamstown, South Africa, by whom seeds were presented to Kew in 1892. The plants raised from these seeds have been grown in pots in a cool frame, where, however, they thrive indifferently until 1912, when they suddenly began to make vigorous growth and flowered for the first time in September of that year. They flowered again in September, 1913, when the opportunity was taken of preparing the present illustration. During the twenty years that this species has been in cultivation without flowering at Kew it has also been tried in the open border with other species of *Kniphofia*, but has never in that situation proved a success owing to its being manifestly less hardy than the majority of the species under cultivation. The species when in flower was seen by Mr. Berger, who at once recognised it as one not enumerated in his recent scholarly monograph of the genus. It is apparently most closely allied to the Abyssinian *K. comosa*,
MARCH, 1914.

Hochst., figured at t. 6569 of this work, which has also a clear-yellow perianth similar in shape to that of *K. carinata*, but is readily distinguished by its much longer bright red filaments. Both species have leaves of thin texture which are acutely keeled upwards from a short distance above the base. The Transvaal species *K. ensifolia*, Baker, is easily recognised by its scabrous leaf-margins, while the Abyssinian species *K. Leichtlini*, Baker, figured at t. 6716 of this magazine, which is a member of the same section, differs in having a reddish perianth, stamens that are but slightly exserted, and a less pronounced more obtuse keel to the leaf.

DESCRIPTION.—*Herb*, perennial. *Leaves* $2\frac{1}{2}$ ft. long, 1 in. wide at the base, thence gradually tapering to an acuminate tip, deeply channelled above, sharply keeled beneath, thin, glabrous, margins smooth, narrowly hyaline. *Scape* cylindric; bracts lanceolate, long-acuminate, scarious, $\frac{1}{3}$ in. long, $\frac{1}{12}$ in. wide; raceme 6 in. long, dense-flowered; pedicels short; flowers nodding. *Perianth* clear-yellow; tube narrow-urceolate, slightly constricted above the ovary, $\frac{3}{4}$ in. long, $\frac{1}{5}$ in across near the tip; lobes erecto-patent, obtuse, $\frac{1}{8}$ in long, $\frac{1}{7}$ in. wide. *Filaments* about $1\frac{1}{4}$ in. long, coloured like the perianth; anthers oblong, $\frac{1}{8}$ in. long. *Ovary* ovoid, $\frac{1}{6}$ in long, 3-lobed, smooth; style subulate, rather longer than the stamens. *Ovules* numerous.

Fig. 1, a flower; 2 and 3, stamens; 4, pistil:—*all enlarged*.



TAB. 5946.

KNIPHOFIA CAULESCENS.

Native of South Africa.

Nat. Ord. LILIACEÆ.—Trile, ALOINÆÆ.

Genus KNIPHOFIA, *Mœnch*; (*Endl. Gen. Plant.*, p. 143).

KNIPHOFIA *caulescens*; trunco erecto cylindraceo, foliis glaucis longissime subulato-ensiformibus ab ima basi ad apicem triquetrum sensim attenuatis dorso alato-carinatis, marginibus et carina argute serrulatis, scapobracteolis parvis sparsis subulatis, racemo brevi fusiformi acuto, perianthii recti $1\frac{1}{2}$ -pollicaris lobis brevibus obtusis, filamentis longe exsertis subsequalibus, ovario obovoideo.

KNIPHOFIA *caulescens*, *Baker mss. in Hart. Kew et Wilson Saunders.*

The accompanying figure is taken from a drawing made by my friend, W. Wilson Saunders, Esq., F.R.S., who flowered this fine species of *Kniphofia* in his garden at Reigate, in June of the present year. It differs from all other species known to me, in the distinctly caulescent habit, in this respect approaching the arboreous Cape Aloes, amongst which Linnaeus included the genus to which it belongs. From the well-known *K. Uvaria* this species further differs in its small size, very glaucous habit, short racemes, much smaller less curved flowers, longer more exserted subequal filaments, and obovoid ovary.

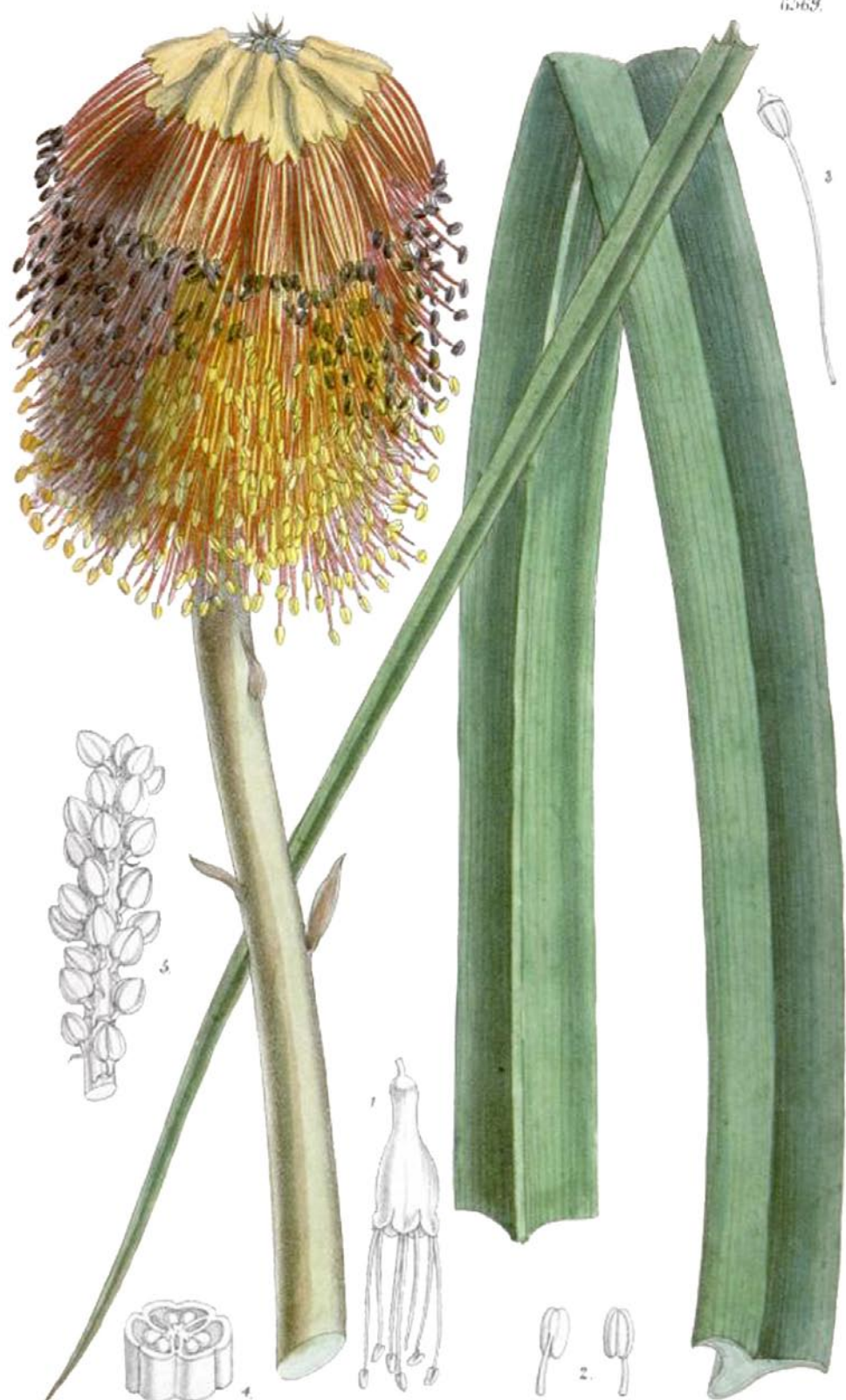
K. caulescens is a native of South Africa, where it was detected by Mr. Cooper, when collecting for Mr. W. Saunders in the Storm Bergen mountains, which bound the Albany district on the south, and border on British Caffraria; though a sufficiently striking species, it will never replace the gorgeous *K. Uvaria* as an ornamental border-plant, even if it is as hardy, which is very doubtful; as yet it has not been tried out of doors that I am aware of.

JANUARY 1ST, 1872.

A dozen species of this fine genus are known to me; they are spread throughout Eastern and Southern Africa from Abyssinia to the Cape district; several of them are said to grow in swamps, which is however not likely to be the case with the caulescent species. Col. Grant found one (when with Capt. Speke) in Tropical Africa, which he describes as a great ornament to the swamps and having a powerful honied smell, too sweet to be agreeable.

DESCR. Trunk, in garden specimens six to ten inches high, as thick as the thumb in our specimen, with short fleshy roots. *Leaves* rather soft, very glaucous, spreading and recurved, two feet long, two and a half inches to two and three-quarters broad at the base, from which they are gradually narrowed to the fine triquetrous tip; keel acute, winged in the later produced leaves, margin and keel serrulate; veins about fifty, obscure; upper surface concave. *Scape* six to ten inches high, stout, erect, green, with many scattered subulate bracts. *Raceme* five to seven inches long, stout, spindle-shaped. *Flowers* pendulous, very dense and numerous, concealing the small subulate bracts; pedicels one quarter inch long. *Perianth* nearly one inch long, straight, nearly equal, base rounded, deep blood-red when young, yellow after expansion; lobes small, obtuse. *Stamens* more than half as long again as the perianth, straight, nearly equal; anthers small, yellow. *Ovary* ovoid.—*J. D. H.*

Fig. 1, Whole plant:—*reduced*; 2 and 3, base and tip of leaf; 4, top of scape and raceme: —*of the natural size*; 5, flower; 6, ovary:—*both magnified*.



M.S. del. J.N. Fitch Lith.

Vincent Brooks Day & Son, Imp.

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TAB. 6569.

KNIPHOFIA COMOSA.

Native of Abyssinia.

Nat. Ord. LILIACEÆ.—Tribe HEMEROCALLIDEÆ.

Genus KNIPHOFIA, *Moench.*; (*Baker in Journ. Linn. Soc.* vol. xi. p. 360.)

KNIPHOFIA *comosa*; rhizomate brevi crasso, fibris radicalibus copiosis cylindricis, foliis linearibus subtriquetris viridibus acuminatis, floribus cernuis in racemum densum oblongum aggregatis, pedicellis brevissimis, bracteis lanceolatis pedicello 3—4-plo superantibus, perianthii lutei infundibularis semipollicaris tubo supra ovarium constricto segmentis deltoideis, genitalibus perianthio subduplo longioribus, racemo fructifero elongato cylindrico pedicellis ascendentibus, fructu orbiculari.

K. comosa, *Hochst. in Flora*, 1844, p. 31; *Baker in Trimen Journ.* 1874, p. 4.

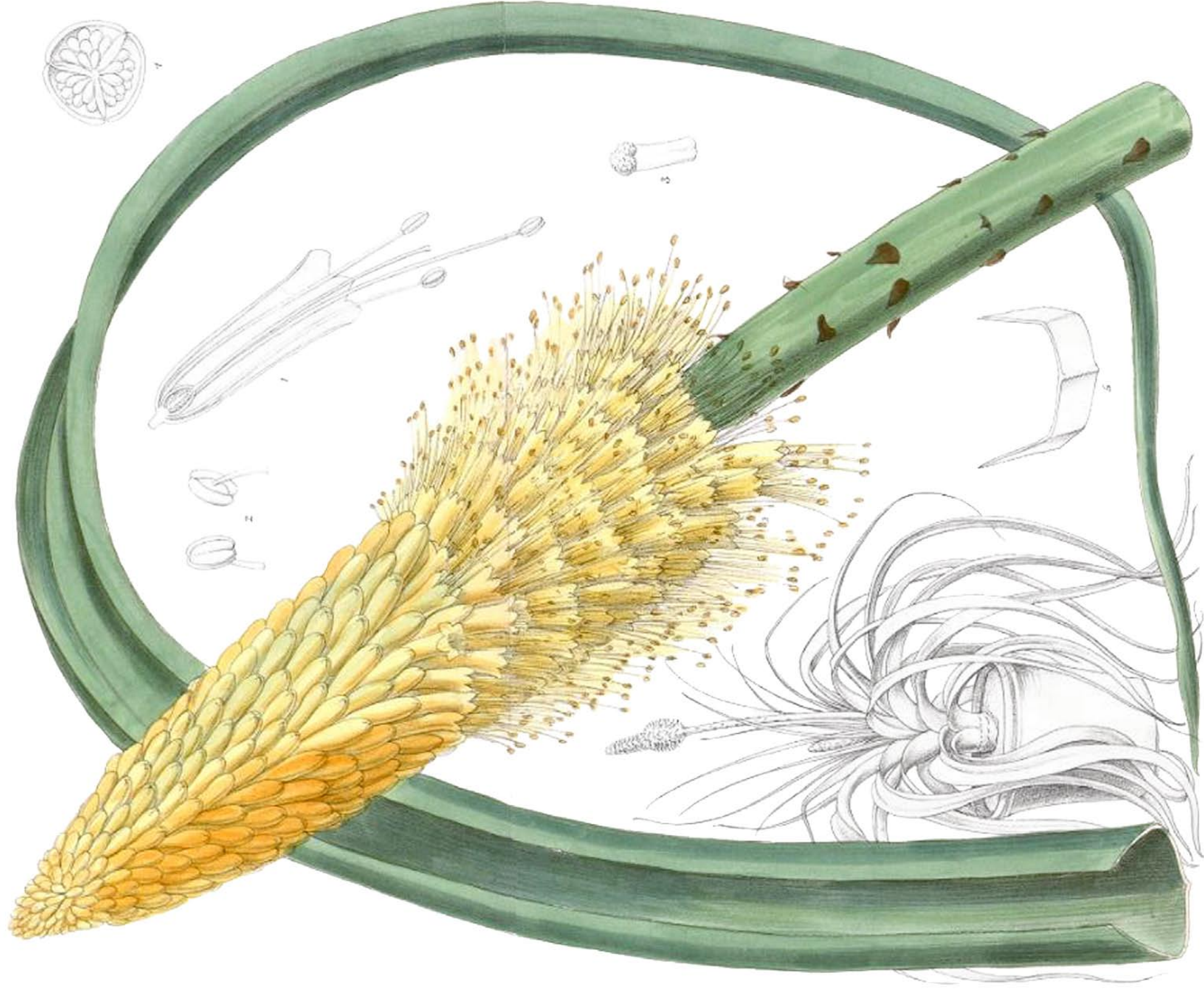
The genus *Kniphofia* is interesting geographically because like *Gladiolus*, *Aloe*, *Philippia*, *Aristea*, *Geissorhiza*, *Moræa*, and many others, it has its head-quarters at the Cape, and is represented in Abyssinia and other mountainous regions of Tropical Africa by outlying representatives. Two of the Abyssinian species have lately been brought into cultivation,—the present plant and *K. Quartiniana*, A. Rich., which was figured lately in Regel's *Gartenflora* (Tab. 907). *K. comosa* is much dwarfer in habit than the well-known *K. Uvaria* of the Cape, with narrower leaves and smaller flowers, with the stamens and style very much exerted from the perianth. Of the smaller Cape species it approaches closely *K. pumila*, Kunth, a figure of which, under the name *Tritoma pumila*, will be found at Tab. 764 of the BOTANICAL MAGAZINE. Our drawing was made from a specimen sent by Mr. Elwes, with whom it flowered at Cirencester last September.

DESCR. *Rootstock* thick and short, sending out copious long fleshy root-fibres. *Leaves* in a dense rosette, linear, erect, bright green, weak in texture, very acuminate, almost triquetrous, half or three-quarters of an inch broad low

JULY 1ST, 1881.

down, one and a half or two feet long in the wild specimens, but growing to twice that length in cultivation, finely veined, smooth or obscurely scabrous on the narrowly cartilaginous margins. *Scape* stout, terete, as long as or longer than the leaves. *Flowers* all drooping, aggregated in a dense oblong raceme; pedicels very short; bracts lanceolate, membranous, under half an inch long. *Perianth* bright yellow, infundibuliform, half an inch long, the tube constricted above the base; segments deltoid. *Stamens* and style bright red, about twice as long as the perianth; anthers minute, oblong, yellow. *Fruit-raceme* cylindrical, half a foot long, with its pedicels ascending. *Capsule* globose, about the size of a pea, dehiscing loculicidally, with numerous small black triquetrous seeds in each cell.—*J. G. Baker.*

Fig. 1, A flower complete; 2, anthers ; 3, pistil; 4, horizontal section of ovary:—*all more or less enlarged.* Fig. 5, portion of fruiting-raceme:—*life size.*



TAB. 6742.

KNIPHOFIA FOLIOSA.

Native of Abyssinia.

Nat. Ord. LILIACEÆ.—Tribe HEMEROCALLEÆ.

Genus KNIPHOFIA, *Mœnch.*; (*Benth. et Hook. f. Gen. Pl.* vol. iii. p. 775.)

KNIPHOFIA *foliosa*; acaulis, foliis ensiformibus acuminatis bipedalibus viridibus e basi ad apicem sensim attenuatis lateribus inflexis margine denticulatis, scapo valido stricto 2–3-pedali, racemo denso elongato, pedicellis brevissimis. bracteis ovatis pedicello 2–3-plo longioribus, peranthio cylindrico luteo vel rubro tincto segmentis brevissimis, genitalibus longe exsertis.

K. foliosa, *Hochst. in Flora*, 1844, p. 30; *Baker in Trimen Journ.* 1874, p. 4.

K. Quartiniana, *A. Rich. Fl. Abyss.* vol. ii. p. 324; *Baker in Journ. Linn. Soc.* vol. xi. p. 362; *Gard. Chron.* 1876, p. 45; *Regel Gartenfl.* vol. xxvi. (1877). pp. 89, 196, tab. 907, *excl. syn.*

The genus *Kniphofia*, as understood in the Genera Plantarum, is restricted to the Cape and mountains of Abyssinia, with the exception of one species that was found near the equator by Speke and Grant, and one that has lately been found on the high mountains of Central Madagascar by the Rev. R. Baron. Altogether there are six species in Abyssinia, none of which are identical with those that occur at the Cape. Three of them have been introduced into cultivation of late years through seeds sent by Schimper to the Berlin Garden, and all three have become fully established in our gardens, and have been freely distributed by Leichtlin. Two out of the three, *K. comosa*, tab. 6569, and *K. Leichtlinii*, tab. 6716, have been figured lately in the BOTANICAL MAGAZINE. The present plant is one of the most robust of the whole genus, and may be recognized at a glance by its broad leaves and much-exserted stamens. Our drawing was made from a plant that flowered with Mr. Elwes at Cirencester in December, 1881. There are three other Abyssinian species not in cultivation, *K. abyssinica*, *K. isoetifolia*, and *K. Schimperii*, all of which have narrow leaves and few-flowered racemes. The two plants from Angola which I

MARCH 1ST, 1881.

referred to the genus are regarded by Mr. Bentham as the type of his new genus, *Netospectrum*.

A coloured drawing which Leichtlin has sent us of the plant as grown at Baden-Baden shows a more robust habit than the English-grown examples, and a tinge of red in the flower which they do not get in our less sunny and more humid climate.

DESCR. Acaulescent. *Rootstock* short, cylindrical, with numerous fleshy root-fibres. *Leaves* aggregated in a dense basal rosette, ensiform, acuminate, three or four inches broad at the clasping base, an inch or an inch and a half broad a foot above it, tapering gradually into a long point, green on both surfaces, moderately firm in texture, the sides inflexed all the way up from midway between the midrib and edge, the margin obscurely denticulate. *Peduncle* stout, erect, terete, two or three feet long, furnished with a few much-reduced leaves. *Flowers* in a very dense cylindrical raceme half a foot or a foot long; pedicels very short; bracts ovate, scariose, two or three times as long as the pedicels. *Perianth* cylindrical, bright yellow, or tinged with red under an inch long; segments very short, semi-orbicular. *Stamens* and style much exserted.—*J. G. Baker*.

Fig. 1, A flower cut through vertically; 2, anthers; 3, stigmatose apex of the style; 4, horizontal section of the ovary, *all enlarged*; 5, section of a leaf, from near the base, *natural size*.



M.S. del J.N. Fitch lith.

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TAB. 6716.

KNIPHOFIA LEICHTLINII.

Native of Abyssinia.

Nat. Ord. LILIACEÆ.—Tribe HEMEROCALLEÆ.

Genus KNIPHOFIA, Moench; (*Benth. et Hook. f. Gen. Pl.* vol. ii. p. 775.)

KNIPHOFIA *Leichtlinii*; acaulis, foliis 4-pedalibus patulis linearibus subtriquetris obtuse carinatis longe attenuatis lete viridibus non glaucescentibus, marginibus levibus, scapo tereti fusco-viridi sesquipedali, floribus pendulis in spicam densam cylindraceam obtusam confertis, pedicellis 0, bracteis parvis ovato-lanceolatis scariosis, perianthio $\frac{3}{4}$ -pollicari pallide aureo-miniato elongato-campanulato ore breviter obtuse 6-lobo, tubo supra ovarium vix constricto, genitalibus perianthio paullo longioribus.

K. *Leichtlinii*, Baker MSS.

The genus *Kniphofia* has attained a prominent place in gardens since the introduction in 1707 of the first species, *K. Uvaria* (see Plate 758, 4816, 6553), and the little *K. pumila* (Plate 764), introduced in 1774; and it now numbers upwards of sixteen species, whilst its geographical limits, which were for long supposed to be confined to South Africa, have been extended far to the north of the tropic in Abyssinia. It cannot be said that the genus has grown in beauty as it has in extent, for none of the species hitherto cultivated at all compares with the old *K. Uvaria* in size, colour, freedom of growth, or hardiness.

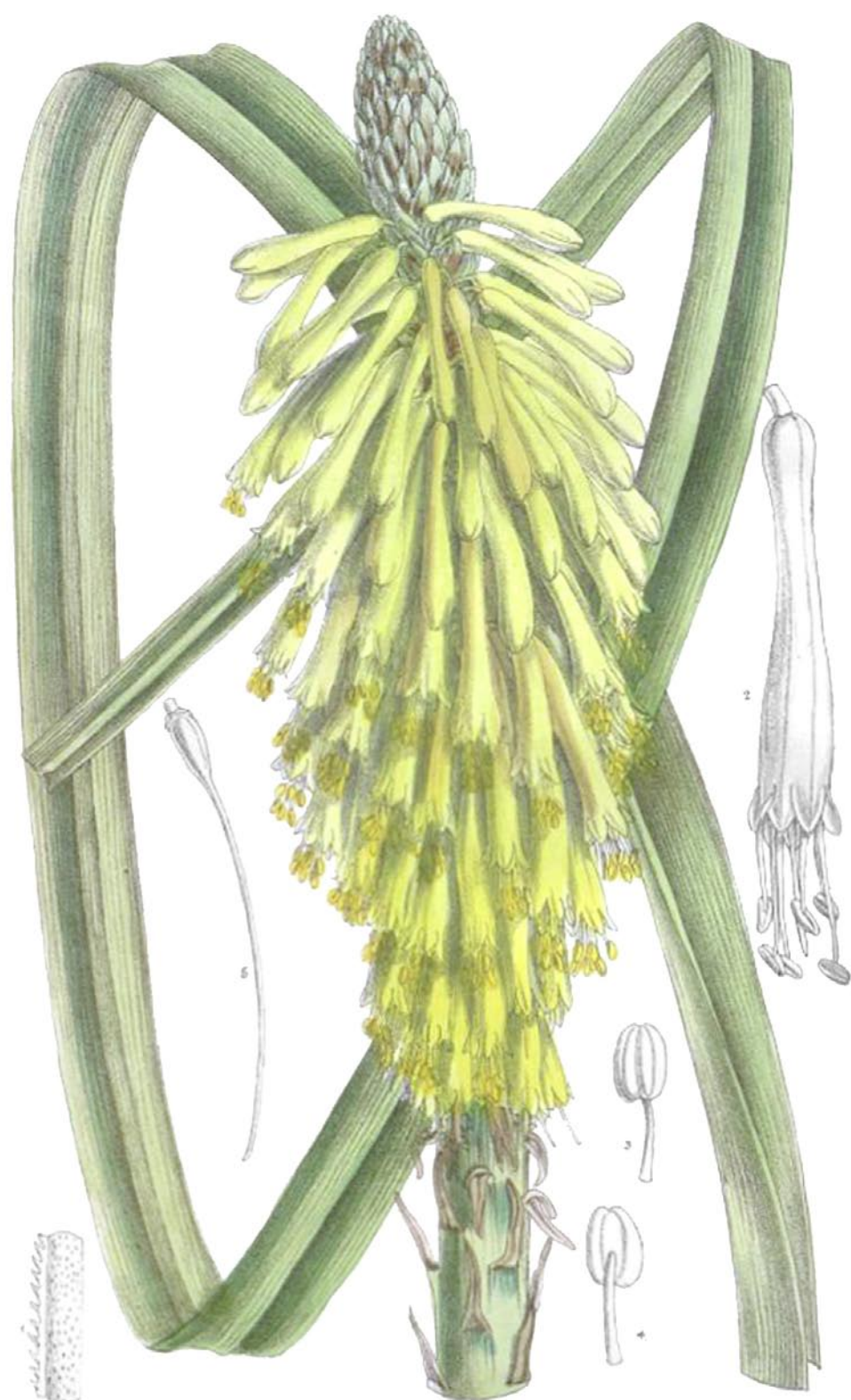
K. Leichtlinii, is a native of Abyssinia, where it was discovered, and roots sent to the garden of the Grand Duke of Baden-Baden by the well-known traveller Schimper. The specimen here figured flowered in the Royal Gardens in September, 1881, from a plant presented by that admirable cultivator, Herr Max Leichtlin, of Baden-Baden. As a species it is perhaps nearest to the South African *K. pumila*.

DESCR. *Stem* none; crown of leaves at the base one to one and a half inch in diameter. *Leaves* four feet long, spreading all round, about three-quarters of an inch in

OCTOBER 1ST, 1883.

diameter at one-third distance above the base, dilating at the base into a broad membranous sheath, and gradually narrowed to the tip; triquetrous, not deeply or sharply keeled, bright green, not at all glaucous, margins quite entire. *Scape* three to four feet high, naked, or with an occasional linear scarious or membranous bracteal leaf sometimes four to five inches long, dull green, minutely speckled with red, giving it a brown look. *Spike* three to four inches long, by one and a half to two inches in diameter, quite cylindric and obtuse; flowers quite sessile, pendulous; bracts a quarter of an inch long, ovate, acute, with long points, membranous, deflexed. *Perianth* three-quarters of an inch long, narrowly bell-shaped, slightly contracted above the base, dull pale vermilion red and yellow; mouth shortly broadly four-lobed, lobes obtuse erect. *Stamens* shortly exserted, for not more than twice the length of the perianth-lobes; anthers shortly oblong. *Style* rather longer than the stamens, stigma minute.—*J.D.H.*

Fig. 1, Section of leaf; 2, flower; 3 and 4, anthers; 5, pistil; 6, transverse section of ovary:—*all enlarged.*



M. S. del. J. N. Fitch lith.

Vincent, Brookes, Day & Son. Imp.

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TAB. 7623.
KNIPHOFIA LONGICOLLIS.
Native of Natal.

Nat. Ord. LILIACEÆ.—Tribe HEMEROCALLEÆ.

Genus KNIPHOFIA, Moench; (*Benth. et Hook. f. Gen. Pl.* vol. ii. p. 775.)

KNIPHOFIA *longicollis*; foliis multis linearibus acuminatis firmulis viridibus margine scabris dorso acute carinatis, pedunculo stricto erecto foliis brevior, racemo densissimo oblongo, pedicellis brevissimis cernuis, bracteis ovatis scariosis pedicellis longioribus, perianthio luteo elongato subcylindrico infra medium leviter constricto, lobis parvis ovatis, staminibus styloque demum distincto exsertis.

K. *longicollis*, Hort. Leichtlin, in Baker in Gard. Chron. 1893, vol. xiii. p. 682, et in Fl. Cap. vol. vi. p. 284.

This new *Kniphofia* is nearly allied to the old well-known *K. aloides*, Moench (*K. Ucaria*, Hook. in Bot. Mag. tab. 4816), but is dwarfer in habit, with firmer, bright green leaves, and bright yellow flowers, without any tinge of red. It was imported from Natal by Herrn Max Leichtlin, and first flowered at Baden Baden in the summer of 1893. Our drawing was made from a plant flowered by W. E. Gumbleton, Esq., at Queenstown, County Cork, in February, 1897. We have not yet received any dried specimen, and do not know at what height above sea-level it grows in its native country. If it prove to be as hardy as *K. aloides*, it will be a valuable acquisition to our gardens.

Descr.—*Leaves* many in a tuft, linear, bright green, two or three feet long, tapering gradually to a long point, firm in texture, scabrous on the margin, acutely keeled on the back. *Peduncle* stiffly erect, shorter than the leaves. *Raceme* oblong, very dense, half a foot long; pedicels very short, cernuous, all the flowers bright, light yellow, tinged occasionally with orange, without any tinge of red; bracts ovate, scariose, longer than the pedicels. Perianth sub-

NOVEMBER. 1ST, 1898,

cylindrical, an inch and a quarter long, slightly constricted below the middle; lobes small, ovate. *Stamens* and *style* finally distinctly exerted; anthers small, oblong, light yellow.—*J. G. Baker.*

1, Margin of leaf; 2, flower; 3, front view of stamen; 4, back view of stamen; 5, style, *all more or less enlarged*,



W 3 units: 2nd or 3rd

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TAB. 6167.

KNIPHOFIA MACOWANI.

Native of South Africa.

Nat. Ord. LILIACEÆ.—Tribe ALOINEÆ.

Genus Kniphofia, *Moench*; (*Baker in Journ. Linn. Soc.*, vol. xi. p. 360).

KNIPHOFIA *Macowani*; foliis 1–1½-pedalibus rigidissimis anguste elongato-subulatis carinatis basi ⅓ poll. latis sulcatis, marginibus crenato-denticulatis, scapo foliis æquilongo, racemo 3–4-pollicari, bracteis ovato-lanceolatis acuminatis, floribus deflexis brevissime pedicellatis, perianthio pollicari subcylindræo basi hemispherico supra ovarium non constricto e flavo aurantiaco-coccineo, segmentis rotundatis patentibus, genitalibus inclusis.

K. Macowani, *Baker in Trim. Jour. Bot.*, 1874, p. 3.

We have several dried specimens of this pretty little Kniphofia, collected by its discoverer, whose name it bears, in grassy places of the Boschberg mountains in Somerset district, where it inhabits elevations of 4000 to 5000 feet. It was described from these by Mr. Baker, and flowered shortly afterwards in the Royal Gardens from roots sent by Professor Macowan. It is remarkably distinct from any of the fourteen species described by Mr. Baker in the eleventh volume of the “Linnæan Journal,” and which are alluded to under *K. Rooperi* (Tab. nost. 6116), and forms one of six additional species subsequently described by Mr. Baker in Dr. Trimen’s “Journal of Botany,” quoted above.

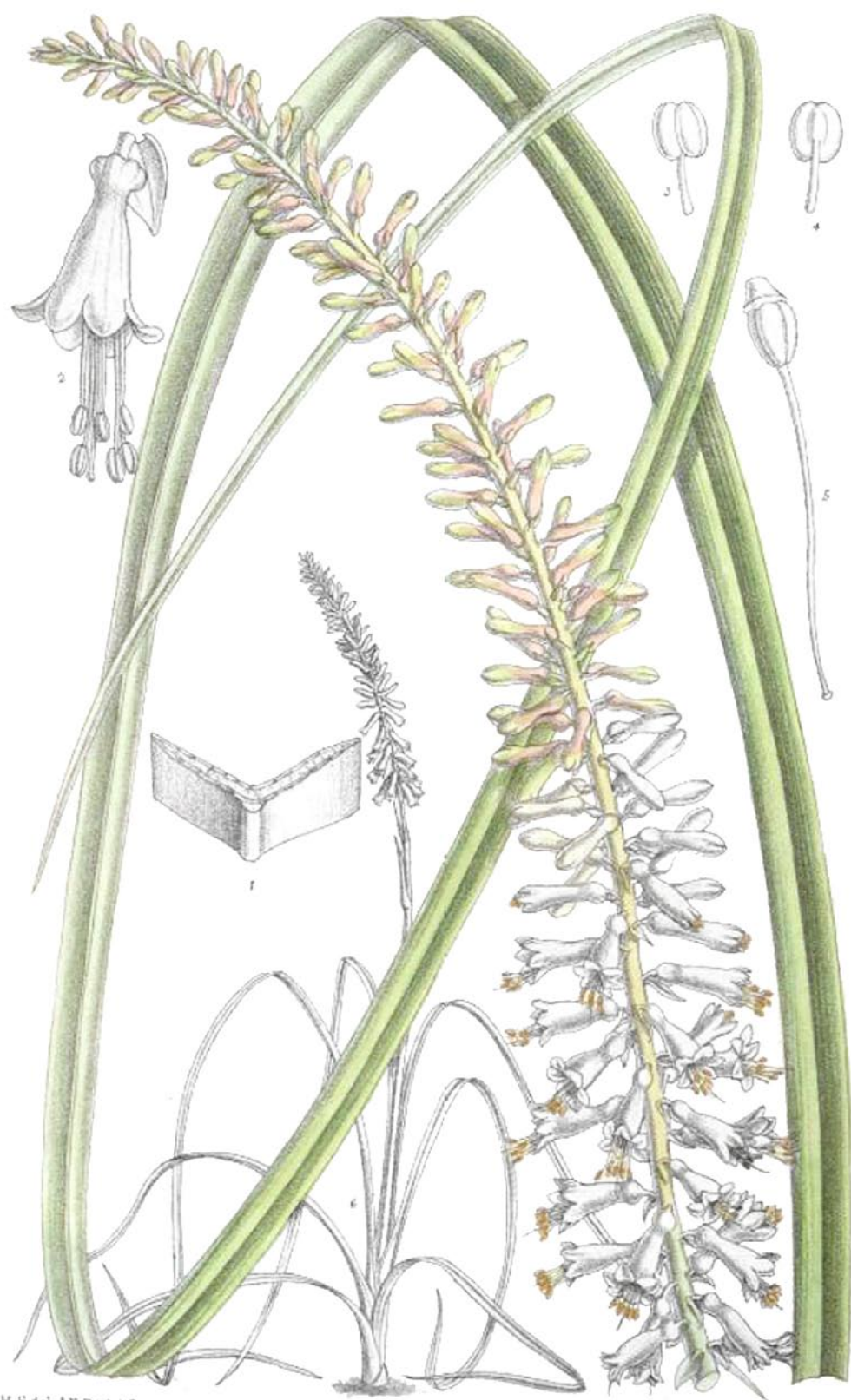
It is best treated as a greenhouse plant, though probably as hardy as the other species of the genus.

DESCR. *Root* of stout fibres. *Stem* as thick as the thumb at the base, clothed with the rigid fibrous nerves of the old leaves. *Leaves* one to one and a half feet long, suberect, one-third of an inch broad at the base, narrow subulate, strongly keeled, triangular at the back, deeply grooved, margins strongly toothed, tips flattish. *Scape* as long as the leaves or longer, slender, cylindric, with one subulate bract or none. *Raceme* three to five inches long, cylindric-ovoid. *Bracts* one-quarter of an inch long, ovate-lanceolate, acumi-

JUNE 1ST, 1875.

nate, white, membranous. *Flowers* very shortly pedicelled, deflexed, yellowish passing into bright orange-red; tube nearly cylindric, rounded at the base, not contracted above the ovary, slightly narrowed from the lower third to the throat; segments one-twelfth of an inch long, rounded, spreading. *Stamens* included.—*J.D.H.*

Fig 1, Flower, *magnified*.



M. S. del., J. N. Pichler. G.

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TAB. 7293.

KNIPHOPIA MODESTA.

Native of Natal and Griqua-land.

Nat. Ord. LILLIACEÆ.—Tribe HEMEROCALLEÆ.

Genus KKNIPHOFIA, Moench; (*Benth. et Hook. f. Gen. Pl.* vol. ii. p. 775.)

KKNIPHOFIA modesta; fibris radicalibus gracilibus firmis cylindricis, foliis paucis linearibus erectis 2–3-pedalibus pallide viridibus facie profunde canaliculatis marginibus lævibus leviter revolutis, pedunculo gracili foliis breviori, racemo elongato cylindrico subdenso multifloro, floribus superioribus ascendentibus inferioribus deflexis, pedicellis brevissimis, bracteis scariosis superioribus ovatis inferioribus lanceolatis, perianthio infundibulari parvo albo supra ovarium constricto, lobis orbicularibus, genitalibus demum conspicue exsertis.

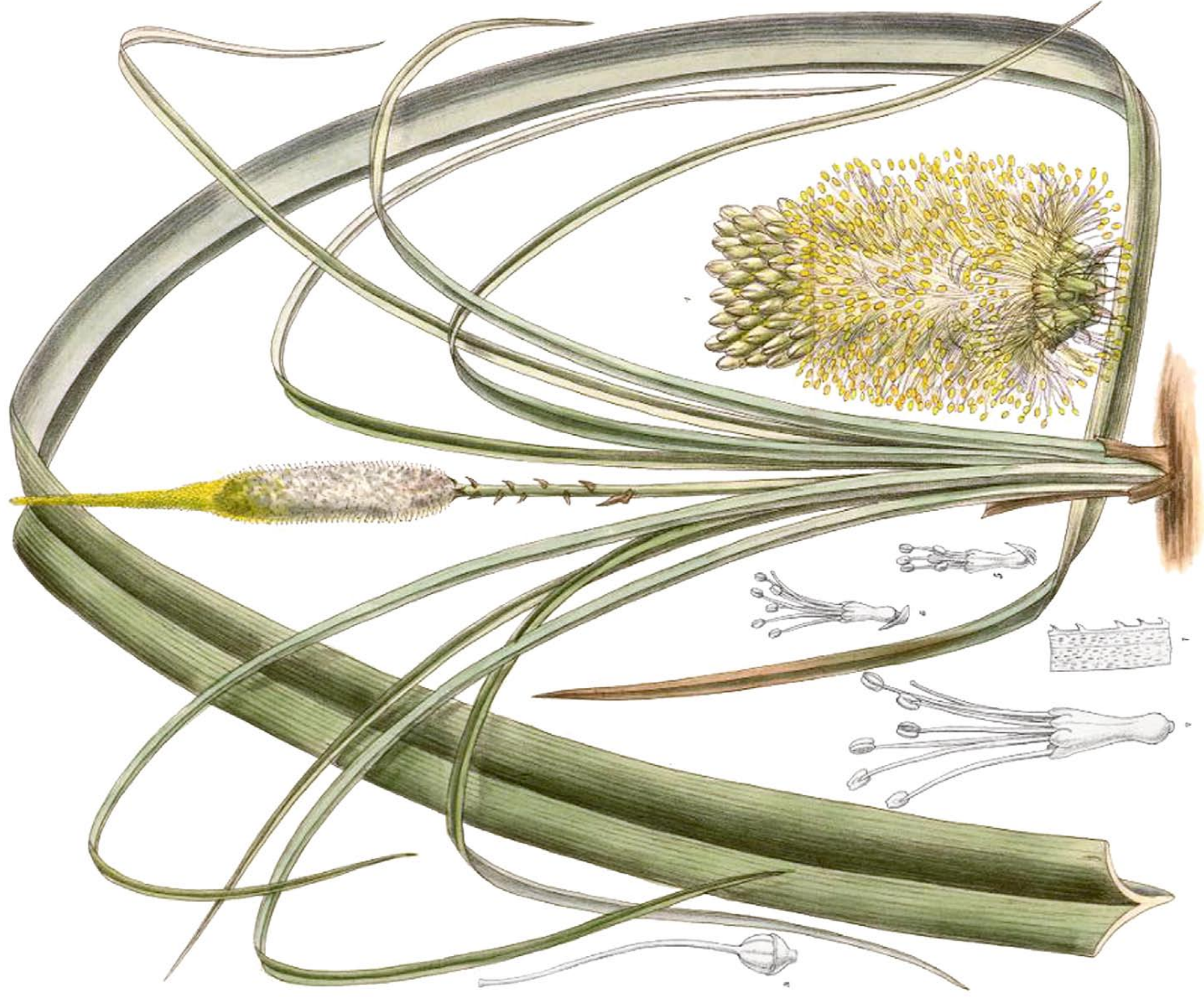
K. modesta, *Baker in Journ. Bot.* 1889, p. 43; *Gard. Chron.* 1889, vol. ii. p. 588.

This very distinct new species of *Kniphofia* was first discovered in 1884 by Mr. William Tyson on the mountains of Griqua-land East, at an elevation of six thousand feet above sea-level. Soon afterwards it was found in Natal by Mr. J. Medley Wood, A.L.S., Curator of the Botanic Garden at Durban, and sent alive to the Royal Gardens, Kew. It has flowered there in the autumn in a cool conservatory and also in a sheltered border out of doors. With its narrow leaves and small white flowers nothing well can look more different in general aspect from *K. aloides* and the older cultivated kinds. Its nearest ally is *K. pallidiflora*, Baker, a native of the mountains of Madagascar, which has not yet appeared in the BOTANICAL MAGAZINE. It may prove to be the same species as *K. pauciflora*, Kunth, a plant gathered by Drège in Northern Kaffraria, of which I have not been able to see authenticated specimens, but there are several small points in the description which do not agree. Our drawing was made from a plant that flowered at Kew in October, 1892.

DESCR. *Root* fibres slender, firm, cylindrical. *Leaves* few in a cluster, linear, pale green, two or three feet long
MAY 1ST, 1893.

in the cultivated plant, a quarter of an inch broad low down, tapering gradually to the apex, reflexed in the flowering stage in the upper half, deeply channelled down the face, smooth on the rather reflexed edges. *Peduncle* slender, erect, about two feet long, bearing several scariose lanceolate bract leaves. *Raceme* cylindrical, moderately dense, six to twelve inches long; upper flowers ascending, lower deflexed; pedicels very short; bracts scariose, upper ovate, lower lanceolate. *Perianth* white, funnel-shaped, a third of an inch long, constricted above the ovary; lobes orbicular. *Stamens* and *style* finally much exerted beyond the tip of the perianth-lobes.—*J. G. Baker.*

Fig. 1, Portion of leaf; 2, a flower; 3, front view of anther; 4, back view of anther; 5, pistil:—*all enlarged.*



TAB. 7832.
KNIPHOFIA MULTIFLORA.

Native of Natal.

Nat. Ord. LILIACEÆ.—Tribe HEMEROCALLEÆ.

Genus KNIPHOFIA, *Mœnch*; (*Benth. & Hook. f. Gen. Pl.* vol. ii. p. 775.)

KNIPHOFIA *multiflora*; elata, foliis 3–6-pedalibus loratis rigidis supra medium 1–1½ poll. latum sensim in apicem acuminatum angustatis supra profunde canaliculatis læte viridibus nervosis subtus alte carinatis subglau-cis marginibus serrulatis, pedunculo foliis brevior superne bracteis pau-cis sparsis instructo, spica 2-pedali 1½–2 poll. diam. cylindrica, bracteis minutis ovatis acuminatis scariosis, floribus numerosissimis sessilibus densissime congestis erectis, perianthio ½ poll. longo e basi tumido an-guste infundibulari albo nunc viride tincto, lobis parvis rotundatis costa fusca, filamentis perianthio subduplo longioribus albis, antheris breviter oblongis aureis.

K. multiflora, *Wood & Evans in Journ. Bot.* vol. xxxv. (1897) p. 353. *W. Wats. in Gard. Chron.* 1900, vol. ii. p. 334. *Wood, Natal Plants*, vol. iii. Pars I t. 206. *The Garden*, vol. lvi. (1899) p. 48, *cum ic. col.*

No South African genus of plants has supplied within late years so rich a harvest of novelties of horticultur-al interest as *Kniphofia*. Dr. Harvey, in the second edi-tion of the “Genera of Cape Plants,” published in 1868, gives only seven or eight as the number of species. In the “Genera Plantarum” (1883), the number given for all Af-rica, including Madagascar, is sixteen. Mr. Baker, in the “Flora Capensis” (1896), describes thirty-two, to which have now to be added *K. rufa*, *Leichtl*, tab. 7706, and the species here figured; making thirty-four in all, of which sixteen have been figured in this Magazine.

K. multiflora is one of the very few known species with erect flowers. Its nearest affinity is with *K. modesta*, *Bak-er* (tab. 7293), which differs in its much narrower leaves, loose spike, larger drooping flowers, and much shorter filaments. The only other known species with truly erect flowers is *K. pallidiflora*, *Baker*, of Madagascar.

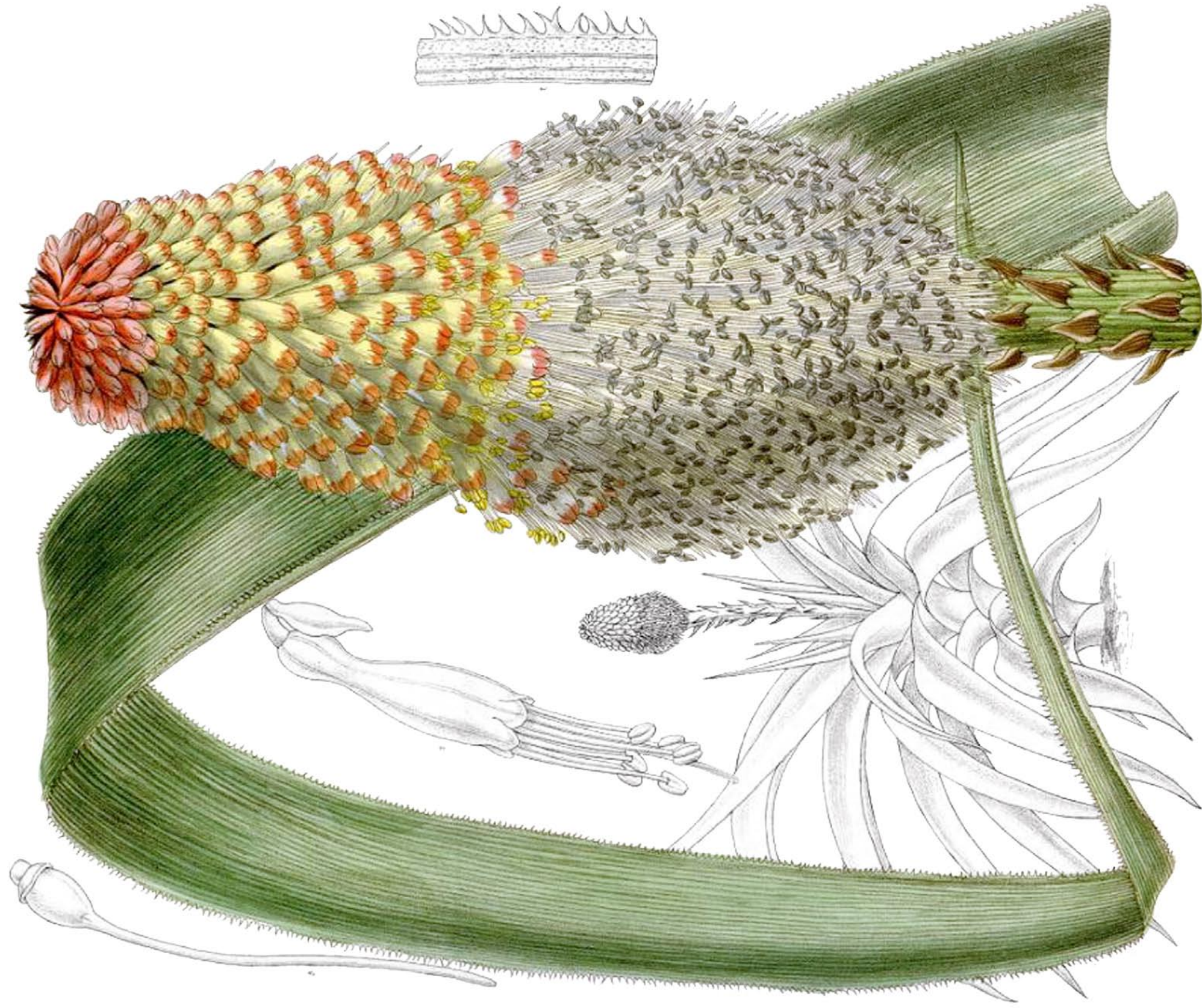
K. multiflora was discovered by Mr. J. M. W. March, growing in swamps on the summit of the Drakensburg range, in Natal, between Van Reenan and Nelson’s Kop, at an elevation of five thousand to six thousand feet

MAY 1ST, 1902.

The specimen here figured was presented to the Royal Gardens, Kew, in 1898, by its valued correspondent, Mr. Max Leichtlin, of Baden-Baden. It flowered in an open-border, under protection, in November, 1900.

Descr.—*Leaves* three to six feet long by an inch broad in the middle, from whence they taper to a long, acuminate tip, rigidly coriaceous, deeply channelled above, strongly keeled dorsally, many- and strongly-nerved, bright-green above, sub-glaucous beneath, margin serrulate. *Peduncle* stout, as long as the leaves or shorter, with a few scattered ovate bracts below the inflorescence. *Spike* two feet long, cylindric, one and a half to two inches in diameter. *Flowers* most numerous and densely crowded, very shortly pedicelled, erect, white, or suffused with green, buds yellowish. *Bracts* minute, ovate, acuminate, scarious. *Perianth* one-half to two-thirds of an inch long, swollen at the base, narrowly infundibular; lobes small, rounded, erect, midrib brown. *Filaments* almost twice as long as the perianth, white.—*J. D. H.*

Fig. 1, margin of leaf; 2, portion of spike; 3. flowers; 4, pistil:—*all enlarged*; 5 and 6, flowers with bracts of the *natural size*.



TAB. 7412.

KNIPHOFIA NORTHIÆ.

Native of Cape Colony.

Nat. Ord. LILIACEÆ.—Tribe HEMEROCALLEÆ.

Genus KNIPHOFIA, Moench; (*Benth. et Hook. f. Gen. Pl.* vol. ii. p. 775.)

KNIPHOFIA *Northiæ*; breviter caulescens, foliis 30–40 dense rosulatis lanceolatis acuminatis recurvatis glaucescentibus e basi ad apicem sensim angustatis, dorso indistincte carinatis margine crebre denticulatis, pedunculo valido foliis multo brevior, racemo densissimo oblongo, pedicellis brevissimis clavatis, bracteis ovatis navicularibus pedicello longioribus, perianthio subcylindrico supra ovarium leviter constricto citrino ante anthesin rubro tincto, lobis brevibus obtusis, staminibus longe exsertis, stylo staminibus longiore.

K. Northiæ, Baker in *Journ. Bot.* 1889, p. 43; in *Gard. Chron.* 1891, vol. ii. p. 66.

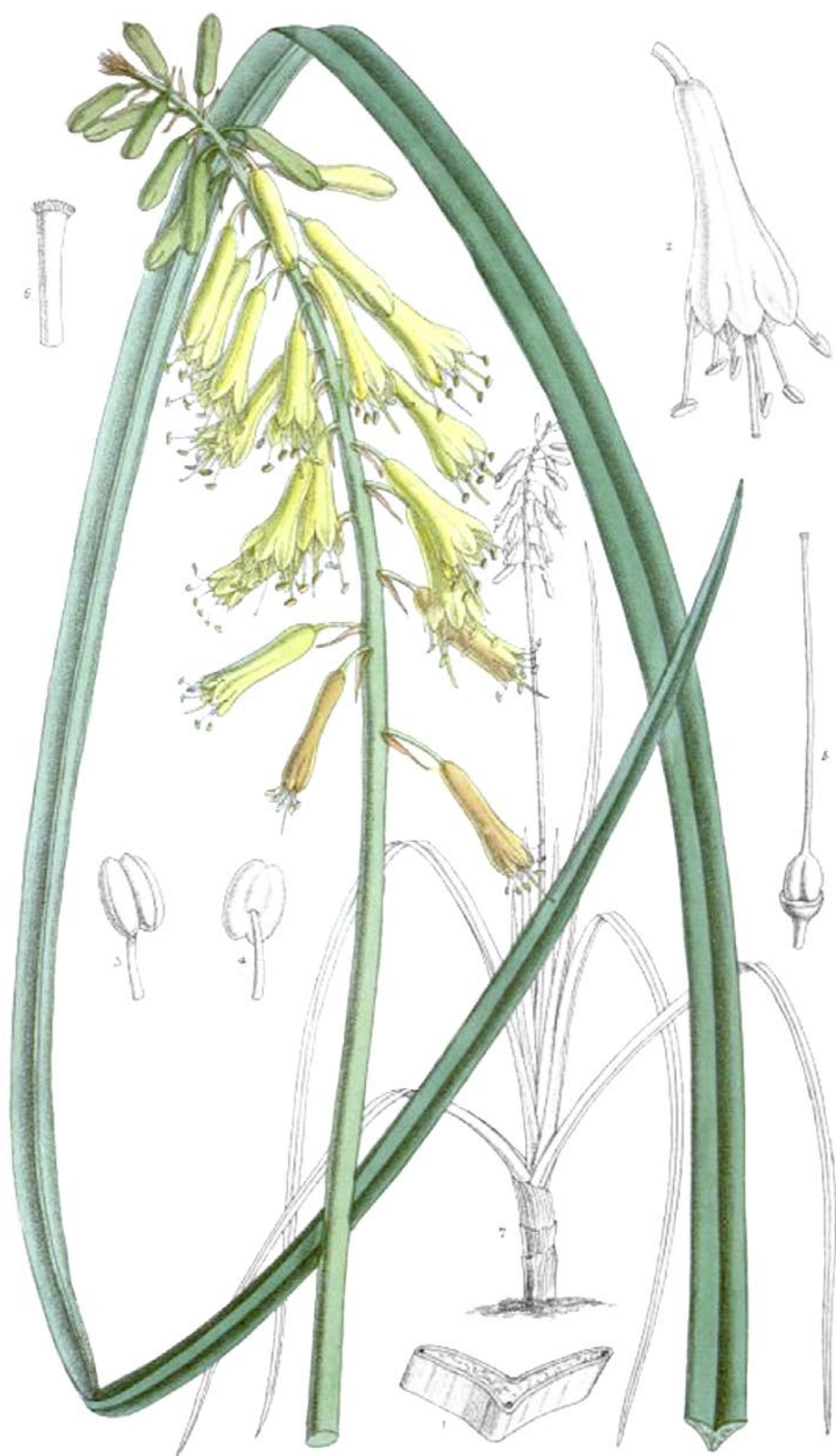
This is the most robust and aloe-like of all the species of this favourite genus. From its nearest ally, *K. caulescens*, Baker (Bot. Mag. tab. 5946) it may be easily distinguished by not having any raised keel on the back of the leaf. It was first brought into notice in this country by Miss Marianne North, who painted it (see the North Gallery, No. 367) and brought home a plant which she presented to the Royal Gardens at Kew. We are informed by Mr. E. Tidmarsh, the Curator of the Botanic Garden at Grahamstown, that it was first found in a wild state in the neighbourhood of that town by Mr. W. Dugmore. It was brought to Kew by Miss North in 1883, and flowered for the first time in the Succulent House in July, 1889. Plants were distributed from Kew, and one of these flowered with Mr. W. E. Gumbleton in County Cork in 1891. For two years a large group of it has been planted out in the open air at Kew, on the south side of the Orchid House, the plants being only protected in winter by a few dry leaves being placed round their collars. Under these conditions it grows freely, and this year every plant has flowered, so that it may be considered as hardy in favourable situations in the south of England

MAY 1ST, 1895.

and Ireland. Our drawing was made from a plant that flowered at Kew in June, 1894.

Descr.—*Stem* shortly produced below the rosette of leaves, two or three inches in diameter. *Leaves* thirty or forty in a dense rosette, lanceolate, acuminate, glaucous, four or five feet long, five or six inches broad near the base, narrowed gradually to a long point, without any acute keel on the back, strongly and closely denticulate on the edges. *Peduncle* very stout, much shorter than the leaves. *Raceme* dense, oblong, half a foot to a foot long; pedicels very short, deflexed, clavate; bracts ovate-navicular, longer than the pedicels. *Perianth* subcylindrical, constricted a little above the ovary, an inch or rather more long, pale yellow when mature, in an early stage more or less tinged with red; lobes short, suborbicular, obtuse. *Stamens* half as long again as the perianth. *Ovary* ovoid; *style* very long, overtopping the anthers.—*J. G. Baker.*

Fig. 1, Margin of leaf; 2, flower, with pedicel and bract; 3, pistil, *all enlarged*; 4, whole plant, *much reduced*.



TAB. 7269.

KNIPHOFIA PAUCIFLORA.

Native of Natal.

Nat. Ord. LILIACEÆ.—Tribe HEMEROCALLEÆ.

Genus KNIPHOFIA, *Moench*; (*Benth. et Hook. f. Gen. Pl.* vol. ii. p. 775.)

KNIPHOFIA *pauciflora*; fibris radicalibus gracilibus, foliis paucis linearibus firmulis viridibus pedalis vel sesquipedalis utrinque acute carinatis margine lævibus, pedunculo erecto gracili foliis æquilongo, racemo laxo paucifloro, pedicellis brevibus apice articulatis, bracteis lanceolatis scariosis pedicellis æquilongis, perianthio anguste infundibulari pallide citrino, lobis brevibus ovatis obtusis, genitalibus omnibus demum distincte exsertis.

K. *pauciflora*, *Baker in Journ. Bot.* 1885, p. 280; et in *Gard. Chron.* 1889, vol. ii. p. 65, fig. 10.

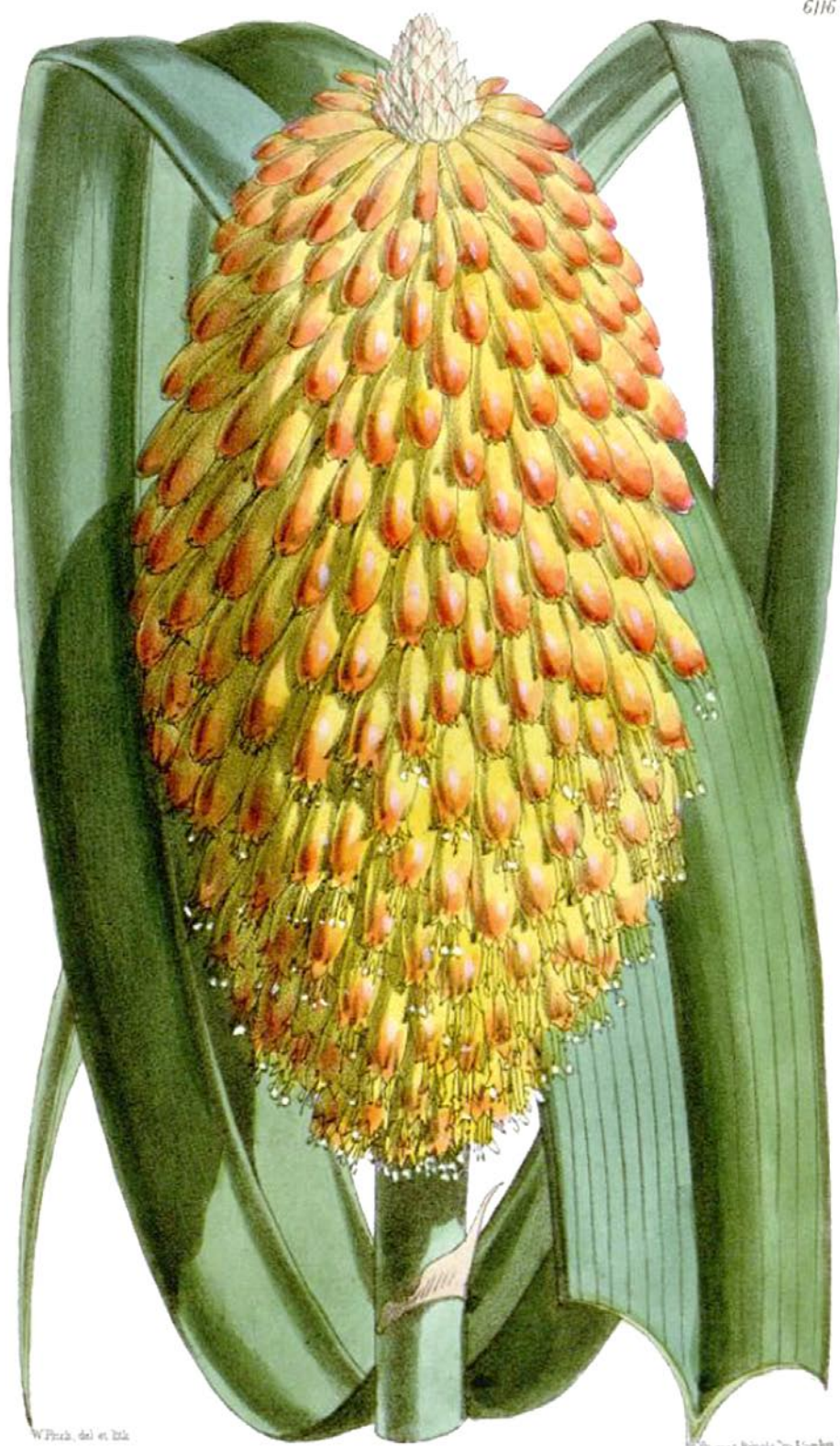
Of late years the number of known species of *Kniphofia* has increased very rapidly. In 1842, when Kunth monographed them in the fourth volume of his "Enumeratio Plantarum," only seven species were known, and now they have increased to forty. They occur, not only outside the tropic in Cape Colony and Natal, but there are endemic types in the mountains of Madagascar, Angola, Abyssinia, and Zambesi-land. The present plant is readily distinguished by its slender habit, narrow leaves, lax racemes and pale yellow flowers. It was first gathered in 1860 by Mr. Sanderson, and was refound two years ago and introduced into cultivation by Mr. J. Medley Wood, A.L.S., the energetic Superintendent of the Botanic Garden at Durban. So far it has been grown at Kew under cover, and has been irregular in its time of flowering. This year it opened out first in March and flowered again in July. It is doubtful whether it will prove hardy, but it is very ornamental in a small pot in a cool conservatory. Our drawing was made from a specimen that flowered in summer in the herbaceous department of the Royal Gardens.

DESCR. *Root-fibres* slender. *Leaves* few to a tuft, linear, green, firm, a foot or a foot and a half long at the flowering time, tapering gradually to the point, acutely keeled on both surfaces, not at all serrated on the margins.

DECEMBER 1ST, 1892.

Peduncle slender, terete, as long as the leaves. *Raceme* lax, few-flowered, three or four inches long; flowers drooping when expanded, pale lemon-yellow; pedicels short, articulated at the apex; bracts lanceolate, scariose, as long as the pedicels. *Perianth* narrowly funnel-shaped, under an inch long; lobes short, ovate, obtuse. *Stamens* and *style* finally distinctly exserted; anthers small, oblong.—*J. G. Baker.*

Fig. 1, Section of leaf; 2, a single flower; 3, front view of anther; 4, back view of anther; 5, pistil; 6, apex of style:—*all enlarged*; 7, whole plant:—*much reduced*.



TAB. 6116.

KNIPHOFIA ROOPERI.

Native of South Africa.

Nat. Ord. LILIACEÆ.—Tribe ALOINEÆ.

Genus KNIPHOFIA, *Mœnch.*; (*Endl. Gen. Plant.*, p. 143).

KNIPHOFIA *Rooperi*; acaulis, foliis elongato-ensiformibus $1\frac{3}{4}$ poll. latis alte carinatis tenuiter cartilagineo-serrulatis, scapo valido, bracteis caulinis paucis brevibus e basi lata semiamplexicauli subulatis, racemo ovoideo-oblongo, perianthii recti $1\frac{1}{2}$ pollicaris lobis brevibus obtusis, bracteolis latis, filamentis demum exsertis.

KNIPHOFIA *Rooperi*, *Moore in Gard. Comp.*, vol. i. p. 113 (*Tritoma*); *Lemaire Jard. Fleur.*, t. 362; *Baker in Journ. Linn. Soc.*, vol. xi. p. 363.

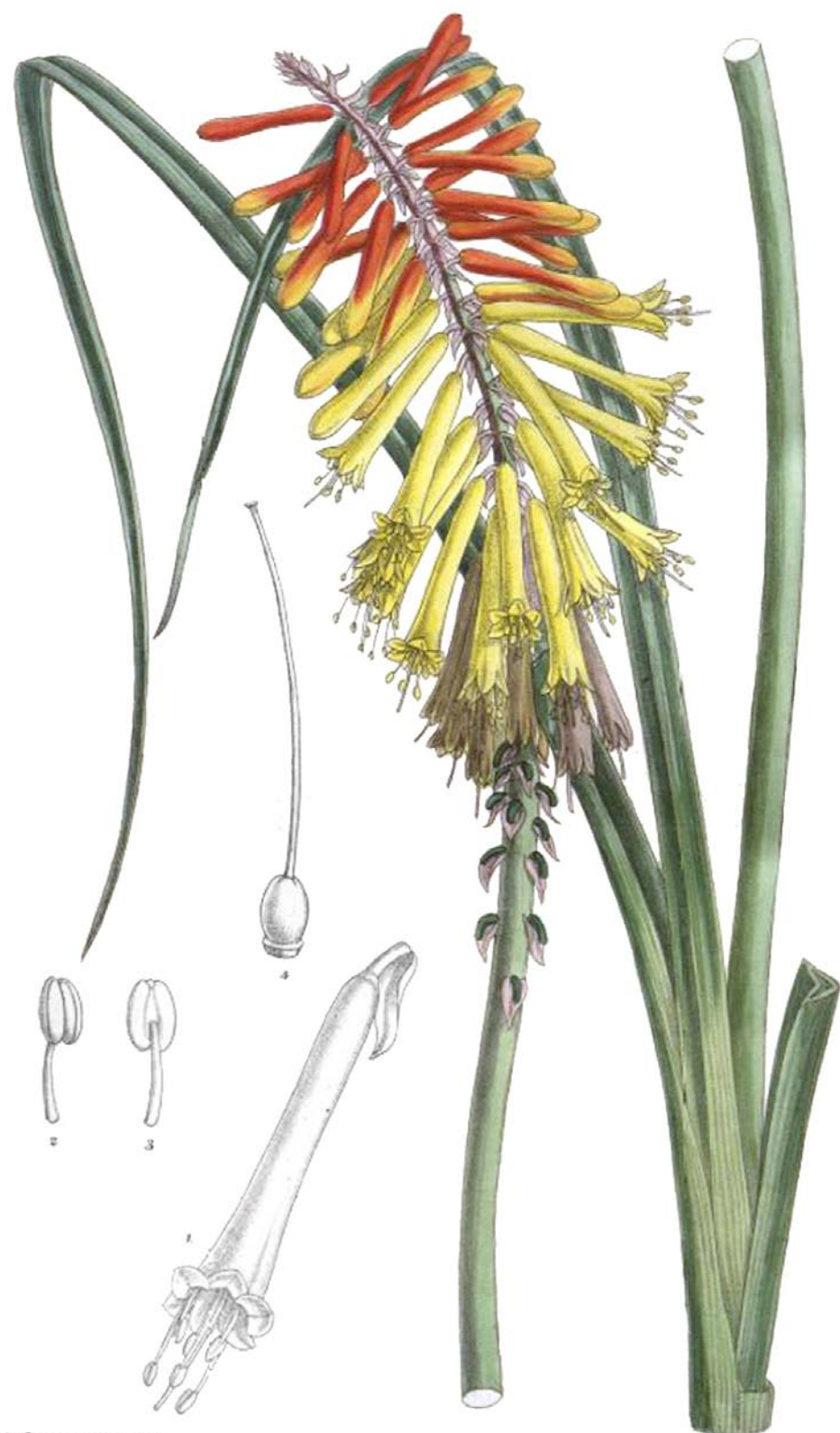
This is very nearly allied to the well known *K. aloides*, (*K. Uvaria*, Tab. 4816, *Tritoma Uvaria*, Tab. 758), and may perhaps prove to be a late flowering variety of it; in which opinion I am strengthened by Mr. Baker, who has monographed the genus in the Linnean Journal. The chief character by which this was distinguished, namely, the included stamens, does not hold good, as the plate shows; better ones may be found in the paler, less curved flower, in the form of the bracteoles, and in broad rich glaucous leaves.

Of the fourteen species enumerated by Mr. Baker, seven have been figured in this country from cultivated specimens; namely, 1. *K. aloides*, mentioned above, which was introduced in 1707, according to the Hortus Kewensis, and probably much earlier into Europe, as it is mentioned in Stapel's Theophrastus as "*Iris Uvaria promontorii Bonæ spei*," 2. *K. præcox*, Baker, (*Saund. Refug. Bot.* t. 168); 3. *K. Burchellii*, Kunth (*Bot. Reg.* t. 1745); 4. *K. pumila* (Tab. nost. 764); 5. *K. sarmentosa* (Tab. nost. 744, *Iris media*); 6. *K. caulescens* (Tab. nost. 5946), and the present plant. All are probably hardy, and require protection only during very severe winters; indeed, it is to the latter cause alone that can be attributed the loss during half a century of so conspicuous and easily grown a plant as *K. aloides*, which reappeared in cultivation

AUGUST 1ST, 1874.

not very many years ago. *K. Rooperi* is a native of British Kaffraria, whence it was sent to England by Capt. Rooper, whose name it bears. The specimen here figured flowered with Mr. Wilson Saunders in November of last year.

DESCR. Two feet high. *Stem* none. *Leaves* eighteen inches long by one and three-quarters broad, ensiform, gradually acuminate, deeply keeled, at the back dark green, not glaucous, margin serrulate. *Scape* very stout, a foot long; bracts few, short, membranous, subulate from a broad semiamplexicaul base. *Spike* six to eight inches long, ovoid-oblong. *Flowers* densely crowded, about one and a half inches long, orange-red, becoming yellow with age; bracteoles broadly lanceolate, acute. *Stamens* at length exserted.—*J. D. H.*



M. S. del. J. N. Pritch. lith.

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TAB. 7706.
KNIPHOFIA RUFA.
Native of Natal.

Nat. Ord. LILIACEÆ.—Tribe HEMEROCALLEÆ.

Genus KNIPHOFIA, Moench; (*Benth. et Hook. f. Gen. Pl.* vol. ii. p. 775.)

KNIPHOFIA *rufa*; acaulis, foliis linearibus paucis viridibus firmis dorso acute carinatis margine lævibus, pedunculo modice valido foliis æquilongo, racemo laxo, pedicellis brevissimis cernuis, bracteis ovato-lanceolatis pedicellis superantibus, floribus inferioribus citrinis superioribus rufo tinctis, perianthii cylindrici lobis orbicularibus patulis, staminibus demum exsertis.

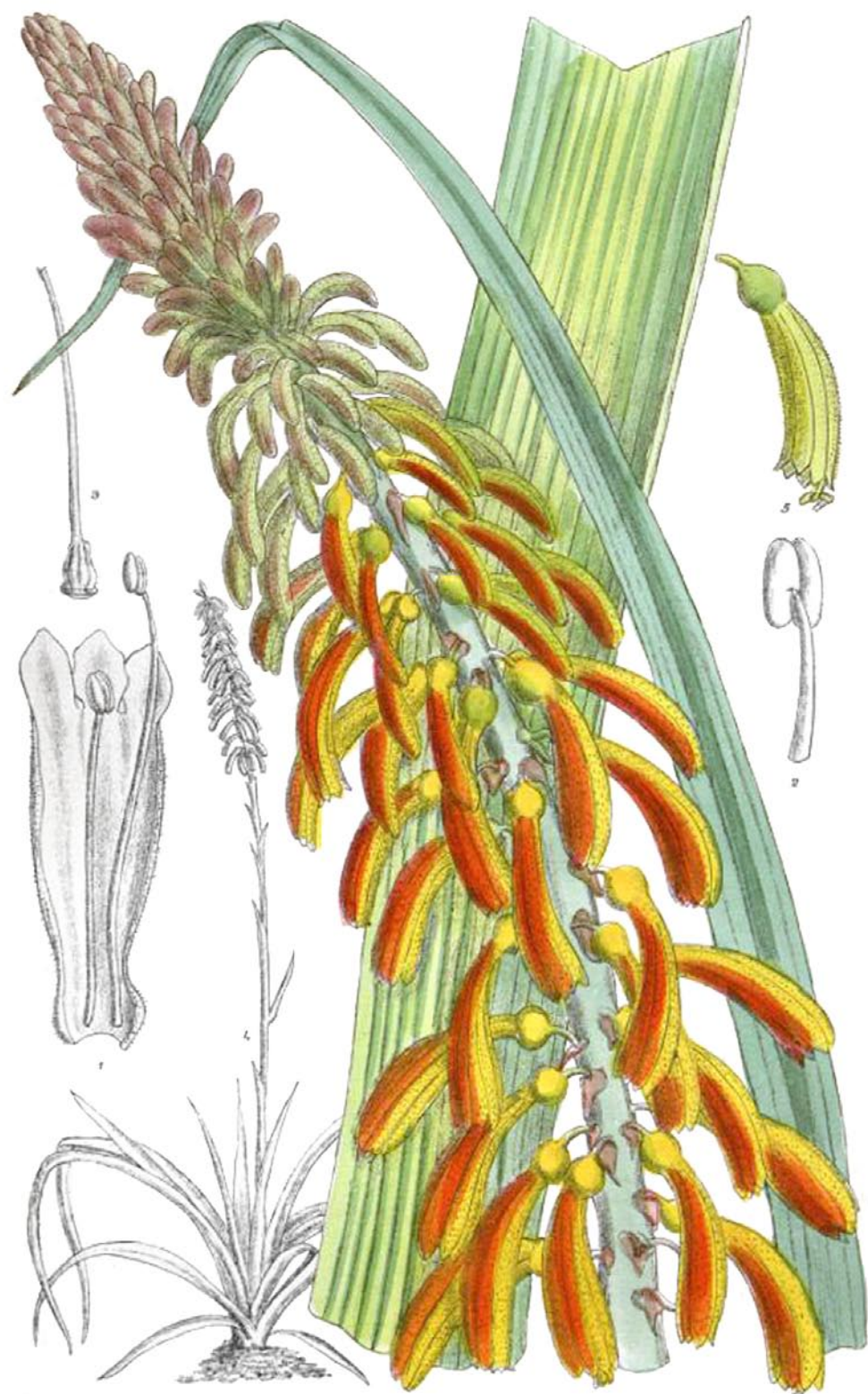
K. *rufa*, Hort. *Leichtlin*.

This pretty little new species of *Kniphofia* is nearly allied to *K. laxiflora*, Kunth, from which it differs in its shorter, smooth-edged leaves, shorter perianth, and exserted stamens. It was introduced alive from Natal not long ago by Mr. Max Leichtlin, of Baden Baden, and was drawn from plants that he sent to Kew in June, 1899.

Descr.—Acaulescent. *Leaves* linear, few, firm, green, acutely keeled on the back, a foot or a foot and a half long, a third of an inch broad low down, tapering gradually to the point. *Peduncle* terete, moderately stout, as long as the leaves. *Raceme* lax, four to six inches long; pedicels very short, cernuous; bracts ovate-lanceolate, much longer than the pedicels, scarious, white, with a brown keel; lower flowers primrose-yellow; upper tinged with red. *Perianth* cylindrical, three-quarters of an inch long; lobes orbicular, spreading. *Stamens* and *style* finally exserted.—*J. G. Baker.*

Fig. 1, perianth with pedicel and bract; 2, front view of anther; 3, back view of anther; 4, pistil:—*All enlarged.*

MARCH 1ST, 1900.



MS 3d AWD lith.

L. Reeve & Co London.

TAB. 8867.

KNIPHOFIA SNOWDENI.

Uganda.

LILIACEAE. Tribe HEMEROCALLEAE.

KNIPHOFIA, Moench; *Benth. et Hook. f. Gen. Plant.* vol. iii. p. 775; A. Berger in *Engl. Pflanzenreich, Lil.-Asphod.-Aloin.* p. 31.

Kniphofia Snowdeni, C. H. Wright in *Kew Bull.* 1919, p. 264; species *K. longistylae*, Baker, proxima, perianthio pubescente differt.

Herba caespitosa. *Folia* linearia 3 cm. lata, glabra, circiter 15-nervia, integra, marginibus hyalinis. *Pedunculus* 1·2 m. altus, cylindricus; spica 3 dm. longa; bractee ovatae, longe acuminatae, 5 mm. longae. *Perianthium* 8 cm. longum, leviter curvatum, supra ovarium constrictum, extra pubescens, costis validis instructum, rubrum vel luteum; lobi rotundati, obtusi, 2 mm. longi et lati. *Antherae* inclusae. *Ovarium* conicum; stylus triquetrus, demum exsertus.—C. H. WRIGHT.

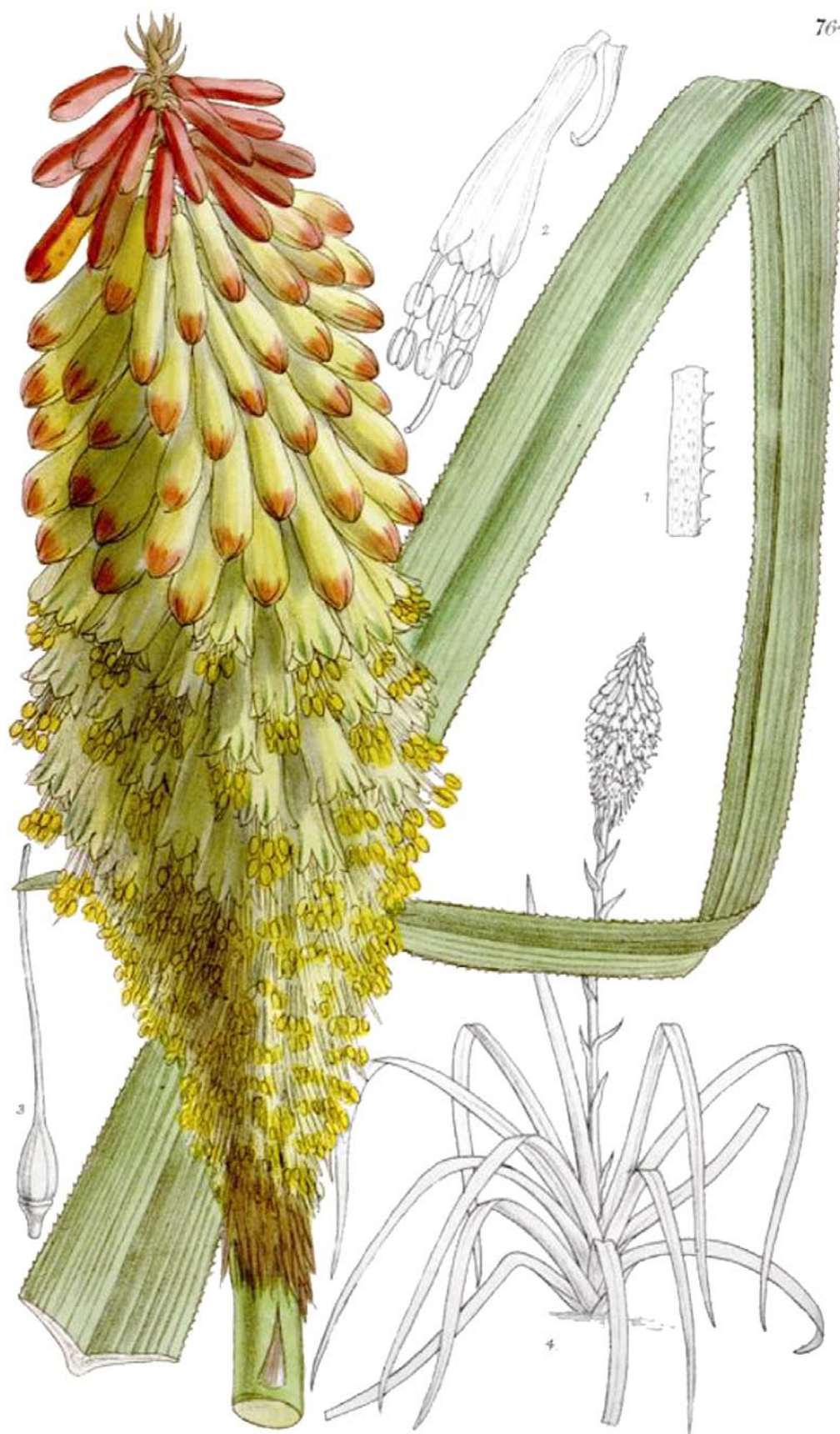
The *Kniphofia* which forms the subject of our plate was originally discovered in October, 1916, by Mr. J. D. Snowden of the Department of Agriculture, Uganda, growing among short grass and in small scrub on the slopes of Mount Elgon at about 8,000 to 10,000 feet above sea level. In 1918 seeds collected in the same locality were forwarded to Kew by Mr. R. A. Dummer. From these, plants were successfully raised, some of which flowered in the open in September, 1919. The plant collected by Snowden, on which the original description of our species was based, was considerably smaller than the plants raised from the seed supplied by Dummer, but did not differ in other characters. Fortunately while these were in flower Mr. Snowden, when visiting Kew while on furlough, had an opportunity of seeing them, and recognised in them, without hesitation, the species he had collected on Mount Elgon. In his original specimen the leaves are only a foot long, and the inflorescence is two feet high, whereas the plants raised at Kew reach a height of five feet, with leaves two feet long. Such dimensions Mr. Snowden assures us are often attained by the wild

OCTOBER-DECEMBER, 1920.

plants he has seen. Mr. A. Berger has relied upon the width of the leaf as a diagnostic character in separating the species of *Kniphofia*, but while this feature may be reliable in the case of plants growing under identical conditions, it may prove less satisfactory when dealing with specimens from different localities. Another rather variable character is the colour of the flowers. These are sometimes uniformly red, sometimes uniformly yellow. In certain cases, however, the flowers though red in bud become yellow when mature. The stamens are included, but the style in the fully developed flower is shortly exerted. The nearest ally of *K. Snowdeni* is *K. longistyla*, Baker, a Nyasaland species which has a cylindric glabrous perianth, and is thus easily distinguished from the one now figured, in which the perianth is densely pubescent and is constricted above the ovary as in the Genus *Gasteria*.

DESCRIPTION.—*Herb*, with tufted linear leaves, $1\frac{1}{4}$ in. wide, glabrous, about 15-nerved, with entire hyaline margin. *Peduncle* 5 ft. high, cylindric; spike 1 ft. long; bracts ovate, long acuminate, $\frac{1}{5}$ in. long. Perianth $1\frac{1}{4}$ in. long, slightly curved, constricted above the ovary, pubescent outside, strongly ribbed, red or yellow; lobes rounded, blunt, about $\frac{1}{12}$ in. long and wide. *Anthers* included. *Ovary* conical; style 3-quetrous, at length exerted.

TAB. 8867.—Fig. 1, longitudinal section of perianth; 2 anther; 3, pistil; 4, sketch of an entire plant; 5, flower from a plant in which all the flowers were uniformly yellow:—*all enlarged except 4, which is much reduced, and 5, which is of natural size.*



TAB. 7644.
KNIPHOFIA TUCKER.
Native of Cape Colony.

Nat. Ord. LILIACEÆ.—Tribe HEMEROCALLEÆ.

Genus KNIPHOFIA, Moench; (*Benth. et Hook. f. Gen. Pl.* vol. ii. p. 775.)

KNIPHOFIA *Tuckii*; foliis dense rosulatis recurvatis linearibus acuminatis viridibus firmis acute carinatis margine serrulatis, pedunculo stricto erecto foliis brevioribus, racemo denso oblongo-cylindrico, floribus omnibus deflexis expansis sulphureis in statu juniore rubro tinctis, pedicellis brevissimis, bracteis oblongo-lanceolatis scariosis albidis, perianthio anguste infundibulari supra ovarium leviter constricto, lobis brevibus late ovatis, staminibus biseriatis omnibus distincte exsertis, stylo staminibus longiore.

K. Tuckii, *Baker in Gard. Chron.* 1893, vol. i. p. 68; *Fl. Cap.* vol. vi. p. 278.

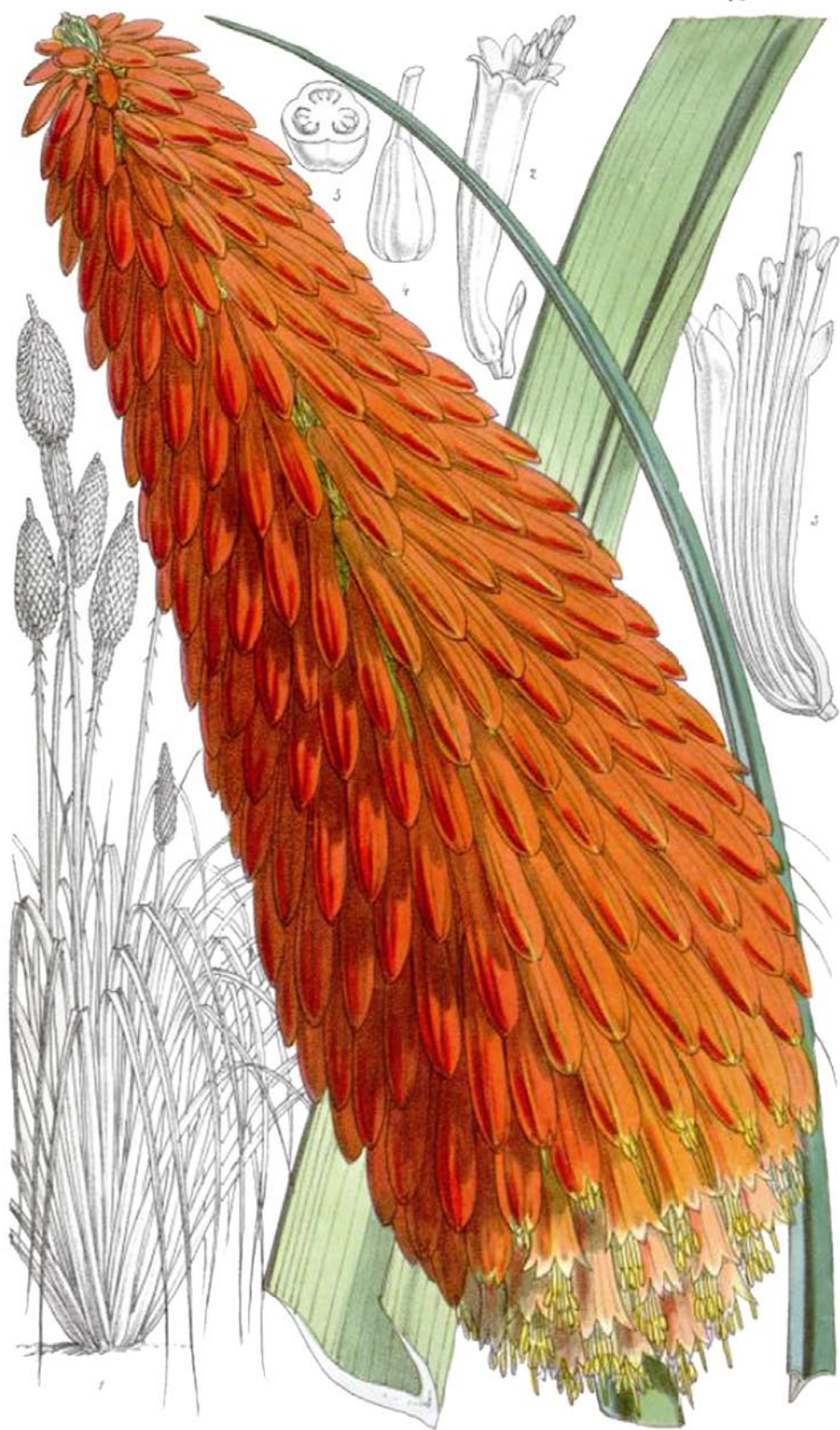
This very distinct species of *Kniphofia* is a native of Colesberg, the central province of Cape Colony, all of which is at least four thousand feet above sea-level. It is allied most nearly to *K. pumila*, Kunth. (*Aletris pumila*, Gawl. in Bot. Mag. t. 764) a species which was early introduced into cultivation in this country, but is now lost. From this it differs by its more robust habit and broader leaves. It was collected for Mr. Max-Leichtlin by Mr. W. Tuck about 1892. The Kew plant, from which our drawing was made, was received from the Cambridge Botanic Garden in February, 1897, and flowered for the first time in the Temperate House in April, 1898.

Descr.—*Leaves* densely tufted, reflexed, linear, acuminate, above two feet long in cultivation, an inch broad low down, green on both surfaces, acutely keeled, firm in texture, serrulate on the margin. *Peduncle* moderately stout, stiffly erect, furnished with several erecto-patent rudimentary leaves. *Raceme* oblong-cylindrical, half a foot long, very dense; flowers all deflexed, sulphur-yellow when mature, tinged with crimson in an early stage; pedicels very short; bracts oblong-lanceolate, scariosa, whitish. *Perianth* narrowly funnel-shaped, above half an inch long, slightly constricted above the ovary; lobes short, broadly

MARCH 1ST, 1899.

ovate. *Stamens* biseriate, all distinctly exserted, the three longest half as long again as the perianth. *Style* much overtopping the anthers.—*J.G. Baker*.

Fig. 1, Margin of leaf; 2, a flower, with pedicel and bract; 3, pistil:—*All enlarged*; 4, whole plant: *Much reduced*.



KNIPHOFIA UVARIA.

Serrulated-leaved Kniphofia.

Nat. Ord. ASPHODELEÆ.—HEXANDRIA MONOGYNIA.

Gen. Char. Perigonium corollinum, campanulato-cylindricum, limbo brevi, sexdentato. Stamina 6, hypogyna: filamenta exserta, alterna elongata. *Ovarium* triloculare. *Ovula* plurima, biseriata, horizontalia, anatropa. *Stylus* terminalis, filiformis; *stigma* obsolete trilobum. *Capsula* cartilaginea, ovata, obsolete trigona, trilocularis, septicido-trivalvis. *Semina* plurima, biseriata, horizontalia (triquetra, fusco-nigra, subtilissime punctulato-scabrata, opaca, arillo membranaceo laxo ruguloso fusco-nigro solubili ad angulos alato-ampliati undique involuta, *Kth.*).—Herbæ *Capenses*, *scapigeræ*; foliis radicalibus, linearibus, canaliculatis, distichis; floribus spicato-racemosis, nutantibus. *Endl.*

KNIPHOFIA *Uvaria*; foliis longissimis acuminatissimis profunde carinatis subglaucis margine carinaque præcipue minute cartilagineo-serrulatis, spica ampla ovato-cylindræa post anthesin inferne insigniter contractis, floribus densissimis deflexis infundibuliformibus limbi lobis modice patentibus, staminibus exsertis.

KNIPHOFIA *aloides*. *Mönch*, *Meth.* p. 631. *Kth. Enum. Pl. v. 4. p. 551.*

TRITOMA *Uvaria*. *Gawler in Bot. Mag. t. 758. Ait. Hort. Kew. ed. 2. p. 290. Red-outé, Liliac. t. 291 (figure excellent).*

TRITOMANTHE *Uvaria*. *Link, Enum. v. 1. p. 333. Roem. et Schult. Syst. Veget. v. 7. p. 629.*

ALOE *Uvaria*. *Linn. Sp. Pl. p. 460.*

ALETRIS *Uvaria*, *Linn. Mant. p. 308.*

VELTHEIMIA *Uvaria*. *Willd. Sp. Pl. v. 2. p. 182.*

VELTHEMIA *speciosa*. *Roth, Nov. Pl. Spec. p. 490.*

ALOE *Africana*, etc. *Commelyn, Hort. Med. Amst. v. 2. p. 29. t. 15.*

“Iris *uvaria* promontorii Bonæ Spei. *Stapel. Theophrast. p. 335.*”

Of late years visitors to the Royal Gardens of Kew have been much struck with the beauty of the flower-spikes of a *Kniphofia* (*Tritoma* of most authors), planted in several of the beds, and producing a most striking effect during the summer months: the plant here represented. In reply to the queries respecting its history, Mr. Smith has only to reply, that it is always what

has been cultivated in these Gardens under the name of *Tritoma Uvaria*, Gawler. The figure, indeed, of Mr. Gawler, above quoted, is so indifferent, that we can well excuse its not being easily recognized, and have no hesitation in offering a better one. We almost regret, but we believe it is only an act of justice, to change a long-established name for one, no doubt, overlooked by the author of *Tritoma*; but we think it equally a duty to retain the Linnaean specific name, for the change of which there can be no reason at all: a name, too, given by the very old botanists. Although a native of the Cape, no plant can be more hardy nor more easily cultivated, and assuredly none more worthy of a place in every garden. Our specimen here represented is no unusually fine one: on the contrary, it becomes larger and handsomer as the inflorescence advances; for then the lower flowers are pressed down close upon the scape, and become entirely of a full yellow colour (as admirably represented by Redouté), while the upper and less expanded blossoms are of the finest red. The species was introduced to our gardens 150 years ago, and yet only now seems to attract special notice.

DESCR. The *leaves* grow in dense tufts (and arise from tubers which are large and flattened beneath, and by means of which the plant increases abundantly); they are very long, three to four feet, and narrow, subulate, that is tapering to a very much elongated, slender point; for nearly the whole length they are somewhat conduplicate, so that a transverse section resembles the letter V; but the apex is very sharply alato-triquetrous. The margins and keel are cartilaginous and rough (to the touch), or minutely serrulated, especially the keel. In these serratures the species differs essentially from *Tritoma media*, Gawl., as well as from the *Tritoma Burchellii* of Dr. Lindley. *Scape* two to four feet high, terminated by a dense bracteolated spike of very numerous drooping flowers, at first bright red, then tipped with yellow, finally wholly yellow. The form of the spike is ovato-cylindrical, singularly contracted at the base when the flowers are past, for then the blossoms are pressed close to the stem, forming a kind of handle to the spike. *Perianth* slightly curved, infundibuliform, six-toothed or six-cleft at the apex: the teeth or lobes moderately patent; the tube obscurely six-angled. *Stamens* exserted, unequal. *Filaments* inserted at the base of the perianth. *Anthers* oblong. *Ovary* ovate, three-furrowed, three-celled. *Style* rather longer than the stamens. *Stigma* obtuse.

Fig. 1. Figure of an entire plant, very much reduced. 2. Flower:—*natural size*. 3. Flower laid open. 4. Ovary. 5. The same cut through transversely:—*all but figures 1 and 2 magnified*.



M.S. del. J.N. Pritch. Lith.

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TAB. 6553.

KNIPHOFIA UVARIA *var.* maxima.

Native of the Orange Free State.

Nat. Ord. LILIACEÆ.—Tribe HEMEROCALLEÆ.

Genus KNIPHOFIA, Moench; (*Baker in Journ. Linn. Soc.* vol. xi. p. 360.)

KNIPHOFIA *Uvaria* *var.* *maxima*; dense cæspitosa, foliis linearibus e basi $1\frac{1}{2}$ poll. lato ad apicem acuminatum sensim attenuatis glauco tinctis acute carinatis margine vix serrulatis, scapo valido 4–6-pedali, racemis subspicatis oblongo-cylindricis densis, floribus deflexis, pedicellis brevissimis, bracteis lanceolatis pedicellis multo longioribus, perianthio cylindrico 15–18 lin. longo segmentis lanceolato-deltaideis, genitalibus longe exsertis.

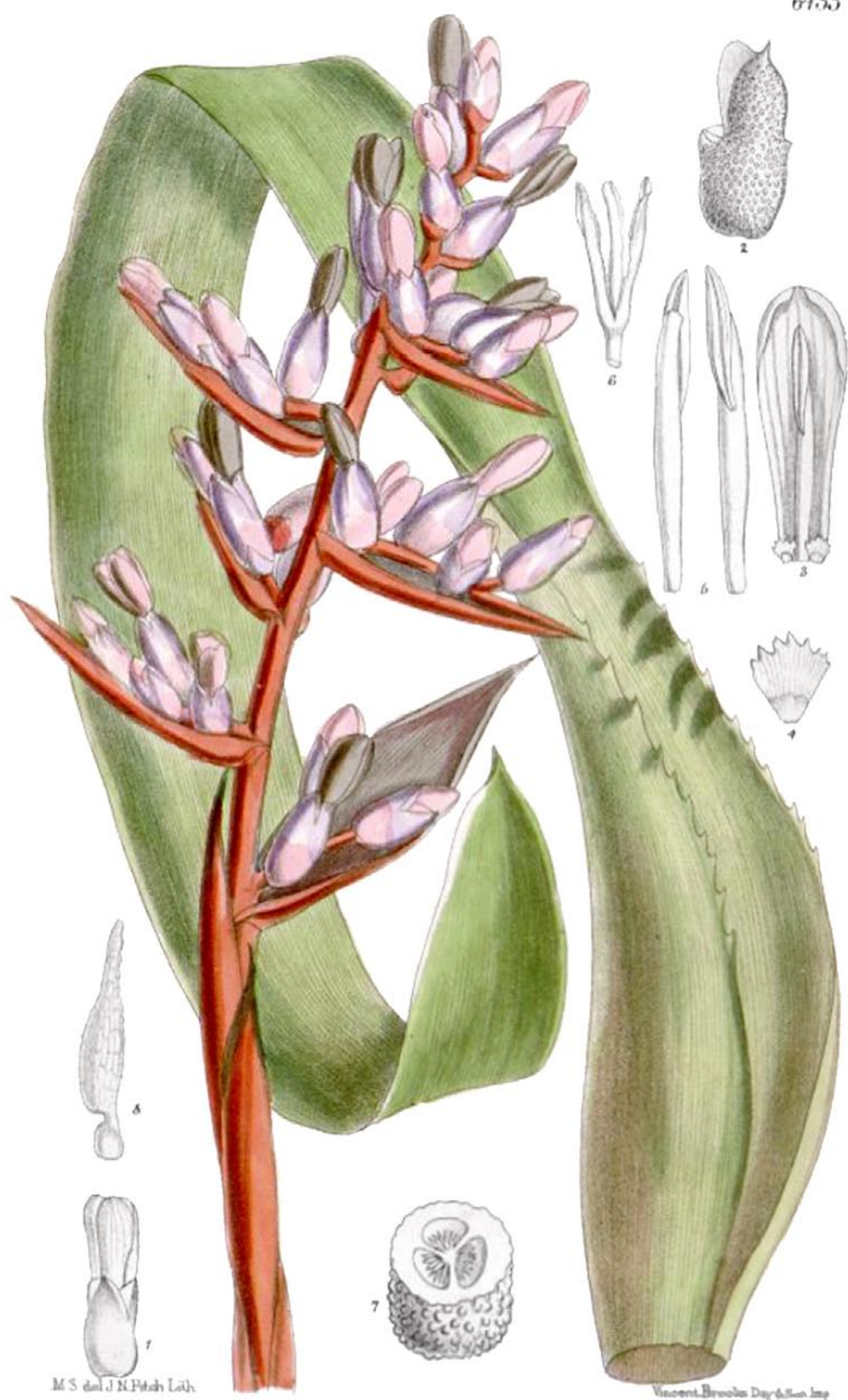
This is the plant now widely spread in gardens under the name of *Kniphofia* or *Tritoma maxima* or *grandis*. Though for garden purposes it has an individuality of its own, I cannot find any characters to separate it specifically from the well-known Red-hot Poker plant, *Kniphofia Uvaria* (Bot. Mag. Tab. 4816), from which it differs by its more robust habit, longer and broader leaves, stouter scape and rather longer flowers, with more decidedly exerted stamens and style. Our drawing was made from plants which flowered in the herbaceous ground at Kew in October, 1879, which we received from Max Leichtlin, Esq. It is a native of the Orange Free State, whence we possess dried wild specimens gathered by Mr. Thos. Cooper in 1862. We have a dried garden specimen from Mr. Cooper, in which the flowering scape, including the raceme, was nearly seven feet long.

DESCR. Densely tufted. *Leaves* linear, four or five feet long, tapering gradually from a base an inch and a half broad to a long acuminate point, glaucous, acutely keeled, not serrulate on the edge. *Scape* four or five feet long, as thick as a man's thumb, obtusely angled by ridges decurrent from the bracts. *Racemes* dense, subspicate,

APRIL 1ST, 1881.

oblong-cylindrical, a foot or more long; flowers all deflexed; pedicels very short; bracts lanceolate, a quarter to half an inch long. *Perianth* cylindrical, an inch and a quarter or an inch and a half long, yellow, more or less tinted with red; segments lanceolate-deltoid. *Stamens* and *style* both considerably exserted.—*J. G. Baker*.

Fig. 1, stamens and pistil; 2, anthers; 3, ovary; 4, horizontal section of ovary:—all enlarged.



M. S. and J. R. Petch Lith.

Vincent Brooks Day & Son Imp.

TAB. 6435.

LAMPROCOCCUS WEILBACHII.

Native of Brazil.

Nat. Ord. BROMELIACEÆ.—Tribe ANNASSEÆ.

Genus LAMPROCOCCUS; *Beer Fam. Brom.* p. 103.

LAMPROCOCCUS *Weilbachii*; acaulis, foliis productis 12–20 dense rosulatis loratis pedalibus vel sesquipedalibus nitide viridibus supra basin dilatatum integris apice deltoideis cuspidatis, pedunculo subpedali erecto foliis bractei-formibus adpressis superioribus igneis occulto, floribus in paniculam laxam dispositis, ramis laxis brevibus patulis paucifloris spicatis subsecundis bracteis magna igneis lanceolatis suffultis, bracteis floralibus minutis, calycis semipollicaris rubro-violacei tubo oblongo, segmentis latis brevibus rotundatis cuspidatis, petalis parvis rubellis lingulatis basi squamatis, genitalibus petalis brevioribus.

L. *Weilbachii*, *E. Morren in Belg. Hort.* 1861, p. 305, cum icone; *Regel Gartenfl.* vol. xvi. p. 98, tab. 539.

L. *Laurentianus*, *K. Koch; E. Morren in Belg. Hort.* 1861, p. 312.

ÆCHMEA *Weilbachii*, *F. Dietr. in Ind. Semin. Hort. Bot. Copen.* anno 1851; *Rafarin in Rev. Hort.* 1870, p. 171, cum icone.

This is one of the most striking of the cultivated Bromeliads; for, although in *Lamprococcus* and *Æchmea* the individual flowers are smaller and less showy than in *Billbergia*, the bright red rachises and bracts of the present plant, in combination with its bright green leaves and reddish-violet calyx, which all preserve their colour for a long time, make it an effective species for decorative purposes. The corolla, however, is small and by no means showy, and soon fades to a brownish tinge. It has been in cultivation a long time, but is still rare in this country. It was first described from a specimen that flowered in 1854 in the Botanic garden at Copenhagen; and again from a plant introduced about 1860 from Brazil, by Monsieur de Jonghe, of Brussels. Our present drawing was made from a specimen that flowered lately in the Kew collection.

DESCR. Produced *leaves* twelve to twenty, in a dense sessile utricular rosette, lorate, a foot or a foot and a half

JUNE 1ST, 1879.

long, about three inches broad at the dilated deltoid clasping base, where it is sharply toothed, entire above the base, thin in texture for a Bromeliad, an inch or an inch and a half broad at the middle, bright green on both sides, faintly lineate down the back, deltoid-cuspidate at the tip. *Peduncle* about a foot long, erect, hidden by its lanceolate adpressed erect imbricating scariose bract-leaves, of which the upper are bright red. *Panicle* half a foot long, with several distant short spreading few-flowered spicate subsecund branches, subtended by bright red scariose lanceolate bracts as long as themselves; rachises, as in the other species of *Lamprococcus*, bright red and quite glabrous; flower-bracts minute-round, navicular, not cuspidate. *Calyx* half an inch long, the reddish-violet oblong tube longer than the round-cuspidate spirally-twisted segments. *Petals* lingulate, obtuse, red, half an inch long, with a pair of small cuneate dentate scales at the base. *Stamens* and *style* shorter than the petals; *anthers* small, oblong; *stigmas* slightly spirally twisted.—*J. G. Baker.*

Fig. 1, An entire flower, *natural size*; fig. 2, calyx-tube, with a single segment; fig. 3, petal and stamen, viewed from inside the flower; fig. 4, scale from base of petal; fig. 5, two stamens; fig. 6, stigmas; fig. 7, horizontal section of ovary; fig. 8, an ovule;—*all more or less enlarged.*



MARSDENIA FLAVESCENS. YELLOWISH-FLO-
 RED MARSDENIA.

Class and Order.

PENTANDRIA DIGYNIA.

(Nat. Ord.—ASCLEPIADACEÆ.)

Generic Character.

Corolla urceolata, 5-fida, nunc subrotata. *Corona staminea* 5-phylla, foliolis compressis, indivisis, intus simplicibus. *Antheræ* membrana terminatæ. *Massæ Pollinis* erectæ, basi affixæ. *Folliculi* læves. *Semina* comosa.—Suffrutices, sæpius volubiles. *Folia opposita, latiscula, plana.* *Cymæ nunc* Thyrsi *interpetiolares.* *Stigma sæpius muticum, quandoque rostratum, rostro indiviso vel bifido.* Br.

Specific Character and Synonyms.

MARSDENIA *flavescens*; caule volubili, foliis oblongo-lanceolatis acuminatis subundulatis supra lævibus ramulisque incano-tomentosis, pedunculis petiolo duplo longioribus, cymis confertifloris, corollis subrotatis fauce nuda. *Allan Cunningham.*

MARSDENIA *flavescens.* *Allan Cunningham MSS.*

The Genus MARSDENIA was so named by Mr. BROWN compliment to WILLIAM MARSDEN, Esq. an encourager of Botany, and the able author of a History of Sumatra, a work of great interest and research. For the discovery of the species we are indebted to Mr. ALLAN CUNNINGHAM, who found it in New Holland, on the sea-shore at the Illawana district, in lat. $34\frac{1}{2}^{\circ}$, whence living plants were imported to His Majesty's Gardens at Kew, where they flower throughout the summer months, and whence our specimens were sent
 in

in June, 1833, by Mr. AITON. Mr. CUNNINGHAM observes, that it comes near *M. viridiflora*, a plant discovered by Mr. Brown South Wales, within the tropics.

DESCR. *Stem* climbing, shrubby, rounded, the branches downy. *Leaves* opposite, petiolate, oblongo-lanceolate; acute subcoriaceous, waved, dark green and glabrous above paler and downy beneath. *Peduncles* axillary about twice as long as the petioles, bearing rather smallymes of yellowish *flowers*, with two small, opposite, bractees at the base. *Calyx* five-cleft, downy. *Corolla* rotate glabrous, of five deep, patent, ovate, acute, spreading segments. *Staminal crown* of five, fleshy teeth, united with the back of the anthers, which latter are diaphanous at the extremety. *Stigma* flat.

Fig. 1. 1. Flowers. 2. Corona, Anthers, and Stigma. 3. Pollen-masses: *magnified*



M.S. del J. N. Patch 1893.

Vincent, Brooklyn, Day & Son L. C. 1899

TAB. 7953.
MARSDENIA IMTHURNII.

Native of British Guiana.

Nat. Ord. ASCLEPIADACEÆ.—Tribe MARSDENIÆ.

Genus MARSDENIA, *R. Br.*; (*Benth. et Hook. f. Gen. Plant.* vol. ii. p. 772.)

MARSDENIA *Imthurnii*; frutex alte volubilis, *M. maculata*, Hook. et *M. Burchellii*, Fourn., affinis, a priore foliis immaculatis, a posteriore floribus majoribus, pedicellis longioribus differt, caulibus teretibus primum appresse pubescentibus florigeris circiter 3 lin. diametro, internodiis quam foliis brevioribus, foliis oppositis longe petiolatis crassiusculis primum mollibus cordatis interdum medio constrictis in ramis florigeris cum petiolo 6–9 poll. longis maximis 4 poll. latis abrupte acuminatis utrinque præcipue subtus primum appresse pubescentibus bullatis venis crassiusculis subtus elevatis, floribus purpureis 5–6 lin. diametro pubescentibus densissime cymoso-umbellatis, cymis axillaribus brevissime pedunculatis subglobosis $1\frac{1}{2}$ –2 poll. diametro, pedicellis pubescentibus 2–3 lin. longis, calycis lobis 5 oblongis obtusis corollæ tubo saltem dimidio brevioribus, corollæ extus pubescentis suburceolatae tubo lato limbi lobis longiore, lobis ovato-oblongis rotundatis recurvis, coronæ squamis 5 erectis crassis carnosius ovatis obtuse acuminatis quam staminibus brevioribus, pollinibus oblongis erectis stipitatis, ovario biloculari multiovulato, fructu ignoto.

M. Imthurnii, *Hemsl.*

Like many other genera of the order *Asclepiadaceæ*, *Marsdenia* is not very well defined, but there is no doubt about the plant figured being a congener of *M. maculata*, Hook. (Bot. Mag. t. 4299), which was founded on a plant cultivated at Kew in 1847, received some years previously from Santa Martha, Colombia. It is also near the Brazilian *M. Burchellii*, Fourn., and *M. mollissima*, Fourn. As defined in Bentham and Hooker's "Genera Plantarum," and in Engler and Prantl's "Die Natürlichen Pflanzenfamilien," the genus comprises about sixty species, very widely dispersed in tropical countries; and there is an outlier, *M. erecta*, R. Br., native of the eastern Mediterranean region. *M. Imthurnii* was raised from seed sent from British Guiana to Kew, in 1882, by E. F. im Thurn, C.B., C.M.G., now Lieut.-Governor of Ceylon, but formerly of the Civil Service in the country named. Mr. im Thurn was an ardent investigator of the Natural History of British Guiana, and Kew is indebted to him for many

MAY 1ST, 1904.

seeds and collections of dried plants. *M. Imthurnii* is a vigorous climber, and covers a considerable space on the roof of the Palm House. It has long, hanging branches, which occasionally flower in autumn; the flowers resembling those of a *Hoya*.

Descr.—A tall, twining shrub. *Stems* rather slender, terete; flowering branches about a quarter of an inch in diameter; internodes shorter than the leaves, pubescent. *Leaves* opposite, on long petioles, rather thick, soft, cordate, sometimes constricted in the middle, those of the flowering-branches including petiole six to nine inches long, the largest four inches broad, abruptly acuminate, hairy on both sides, especially on the under surface, more or less bullate; veins thick, and raised on the under surface. *Flowers* purple, about half-an-inch across, hairy, arranged in dense, globular, axillary, very shortly stalked, umbellate cymes, one and a half to two inches across; pedicels hairy, a quarter of an inch or less in length. *Calyx-lobes* five, oblong, obtuse, about half as long as the corolla-tube. *Corolla* hairy outside; tube broad, slightly inflated, longer than the lobes of the limb; lobes ovate-oblong, rounded at the tip, recurved. *Coronal-scales* five, erect, thick, fleshy, ovate, suddenly and obtusely acuminate, shorter than the staminal column. *Pollinia* oblong, erect, on long stalks. *Ovary* two-celled; ovules numerous. *Fruit* unknown.—*W. B. H.*

Fig. 1, a flower; 2, corona and staminal column; 3, a pair of pollinia; 4, style and stigma:—*all enlarged*.



Fitch del. Lill.

Raven imp.

MARSDENIA MACULATA.

Spotted-leaved Marsdenia.

Nat. Ord. ASCLEPIADEÆ.—PENTANDRIA DIGYNIA.

Gen. Char. Calyx 5-partitus. Corolla subcampanulata, v. rotata, v. rarissime urceolata, 5-fida, laciniis patulis v. rarius reflexis contortis, tubo introrsum glabro, v. superne pilis inflexis instructo. Corona staminea 5-phylla, foliolis gynostegio insertis, simplicibus, ovatis v. inferne rotundatis et in acumen v. in ligulam linearem attenuatis. Antheræ membrana terminatæ. Massæ pollinis ovoideæ, processu subdilatato affixæ, erectæ. Stigma umbonatum muticum v. rostratum obscure bifidum. Folliculi læves. Semina comosa.—Suffrutices in India orientali, Moluccis, Nova Hollandia, rarius in America tropical. v. Antillis et in Europa orient. crescentes; foliis oppositis, planis; pedunculis interpetiolaribus; floribus cymosis v. thyrsoideis. DC.

MARSDENIA *maculata*; volubilis glabra, foliis lato-ellipticis membranaceis acutis (rarius obtusis) maculatis basi cordatis, petiolis ad costæ basin pulvinigeris, umbellis densifloris subsessilibus, sepalis ovato-ellipticis subciliatis, corollæ limbo ciliato, coronæ staminæ foliolis ovatis cum antheris confluentibus, stigmate subapiculato.

This has been long cultivated in the stove of the Royal Gardens of Kew, as a new *Asclepiadeous* plant which had been sent by the late Mr. Lockhart of Trinidad, and we have received flowering plants from Messrs. Lucombe, Pince and Co., of the Exeter Nursery. In 1834 living plants were again transmitted to the Royal Gardens, by our Collector Mr. Purdie, from the plain of Santa Martha, New Grenada. It seems to be a true *Marsdenia*, and is remarkable for its large foliage, spotted with pale yellow, somewhat like the leaves of *Aucuba Japonica*, but with the spots more regular, more equi-distant, and less confluent. It is a great climber, and flowers readily in June: the flowers are of a dark purplish or liver colour, greenish when young, and thus the dense umbels have a mottled appearance. Their texture is rather fleshy, like those of *Hoya*.

DESCR. A strong climbing plant, nearly glabrous in every part. Stems and main branches as thick as a swan's quill. Leaves opposite, large, petiolate, broadly elliptical, membranaceous, acute (rarely obtuse), the base cordate, the whole surface

MAY 1ST, 1847.

marked with pale yellowish spots, of various sizes, but of an irregular orbicular form. The *costa* sends off several strong lateral parallel and almost horizontal *nerves*, and these are more or less united by transverse nervelets. *Petioles* stout, varying in length from one to two inches, the two opposite ones connate at the base around the stem and branch, the apex on the upper side, at the setting on of the leaf, and forming the base of the *costa*, has a cushion-like tuft. *Flowers* rather large, numerous, collected into a dense hemispherical almost sessile umbel, variegated, pale green, and purplish-brown. *Pedicels* and *calyx* brownish with indistinct down. *Sepals* elliptical-ovate. *Corolla*, with the *tube*, as long as the calyx; *segments of the limb* rather longer, rounded, ciliated. *Segments of the staminal crown* ovate, fleshy, not forming an apex distinct from the *anther*, but gradually passing into it. *Stigma* rather acute.

Fig. 1. Flower. 2. Staminal crown.



MESEMBRYANTHEMUM ACINACIFORME.

Scimitar-leaved Fig-Marigold.

Nat. Ord. FICOIDEÆ.—ICOSANDRIA POLYGYNIA.

Gen. Char. (Vide supra, TAB. 2144.)

§ ACINACIFORMIA (Salm-Dyck). Caules fruticosi, validi, angulares, decumbentes. Folia connata, triquetra, acinaciformia, crassa, lævia. Flores speciosi, solitarii, rubicundi aut flavi. Calyx 5-partitus, lobis inæqualibus. Stigmata 6–10. Fructus carnosus.

MESEMBRYANTHEMUM acinaciforme; foliis compresso-triquetris sursum incrassatis acutis vel acutiusculis, carina marginibusque integris v. undulato-serrulatis, pedunculis bibracteatis petalis purpureis, stigmatibus ad 14.

MESEMBRYANTHEMUM acinaciforme. *Linn. Sp. Pl.* 695. *Dill. Hort. Elth. f.* 270-271. *Andr. Rep. t.* 508. *De Cand. Pl. Grasses, t.* 89. *Salm-Dyck, Monog. § 19. t.* 6.

M. lævigatum. *Haw. Syn.* 233.

M. rubrocinctum. *E. et Z., Bot. Reg.* 1732.

M. subalatum. *Haw. Syn.* 235.

Dr. Lindley, speaking of *Mesembryanthemum rubrocinctum* (*Bot. Reg.* 1732), which is a mere variety of this species, remarks, that it may perhaps be considered the finest of the extensive genus to which it belongs. Few things can be more effective than a well-disposed patch of this plant. It is an old inhabitant of gardens in the south-west of England, and well known in many out-of-the-way places, but by no means so generally as it deserves. It is with a view to draw attention to it and to its congeners, which have been too much neglected of late years, that we have had figured this species from a plant grown in the Scilly Islands, obligingly sent to us by A. Smith, Esq., M.P. It is a native of the Cape of Good Hope,—the headquarters of the Fig Marigolds,—growing, according to Dr.

OCTOBER 1ST, 1865.

Sonder ('Flora Capensis,' v. 2. p. 412, whence we have obtained the above synonymy), on the sandy flats near Cape Town, etc. *M. rubrocinctum* differs from our variety solely in the trivial character of a frequent red line along the leaf-margins. The fruit is said to be eatable.

DESCR. *Stem* two to four feet, procumbent, pointed, the young shoots compressed and angular. *Leaves* two to three inches long, about three-quarters of an inch in thickness a little above the middle, triquetrous, pointed, and more or less narrowed to the base, where the opposite leaves are shortly connate; the keel, and sometimes the upper edges of the leaf, are either serrulate or entire, with or without a red line. *Peduncle* two-edged, with a pair of connate *bracts*. *Stamens* four to five inches in diameter; *petals* purple, linear, emarginate. *Anthers* dark-purple. *Stigmas* twelve to fourteen, pale-yellow.

Fig. 1. Calyx and stigmas, after removal of the petals and stamens.



(1824)

MESEMBRYANTHEMUM ALBIDUM. WHITE-
LEAVED FIG-MARIGOLD.

Class and Order.

ICOSANDRIA PENTAGYNIA.

Generic Character.

Cal. 5-fidus. *Petala* numerosa linearia, basi cohærentia.
Caps. carnosa infera polysperma.

Specific Character and Synonyms.

MESEMBRYANTHEMUM *albidum*; foliis subulatis triquetris per-
albis: basi semiteretibus; apice obtusis cum mucrone.
Haworth Mesembr. p. 156. n. 32.—*Misc. Nat.* 27.—
Pl. Succul. 218. *Hort. Kew. ed. alt.* 3. p. 216.

MESEMBRYANTHEMUM *albidum*; acaule, foliis triquetris inte-
gerrimis. *Sp. Pl.* 699. *Willd.* 2. p. 1029.

MESEMBRYANTHEMUM foliis robustis albicantibus. *Hort. Elth.*
243. t. 189. f. 232. cum fructu sed sine flore.

FICOIDES *africana*, folio triangulari ensiformi glauco crasso,
flore amplo aureo. *Bradl. Succ.* 5. p. 10. t. 43.

FICOIDES *africanum* triangulari robustissimo folio. *Herm.*
Parad. 172.

The white-leaved FIG-MARIGOLD is one of those species which are more shy of flowering than many of the genus.

Mr. Haworth ranks it among the afternoon flowering ones. Mr. GEORGE GRAVES, in whose collection this species blossomed last summer, informs us, that with him, the flowers opened regularly at eight in the morning, and continued open for two hours only; at eight in the evening they expanded, and closed at ten. They diffuse an agreeable scent while open, especially in the evening. Flowers in June, July, and August. Propagated by cuttings. Requires the same treatment as the rest of the genus. Our drawing was taken several years ago at the late Mr. GRIMWOOD's nursery.

N^o 262



Painted by W. Curtis. Sc. Gee. Coloured May 1. 1794.

MESEMBRYANTHEMUM AUREUM.
GOLDEN FIG-MARIGOLD.

Class and Order.

ICOSANDRIA PENTAGYNIA.

Generic Character.

Cal. 5-fidus. *Petala* numerosa linearia. *Capsf.* carnosula infera polysperma.

Specific Character and Synonyms.

MESEMBRYANTHEMUM aureum foliis cylindrico-triquetris punctatis distinctis, pistillis atro purpurascentibus. *Linn. Syst. Nat. ed.* 10. p. 1060. *Ait. Kew. v.* 2. p. 190.

This Mesembryanthemum is one of the taller and more upright species, as well as the earliest in point of flowering, producing its blossoms from February to May; these are large and of a bright orange hue, the pistilla in the centre are purple, and serve at once to distinguish and embellish them.

It was first described in the 10th ed. of *Linn. Syst. Nat.* and afterwards inserted in the *Hort. Kew.* of Mr. AITON, who informs us that it is a native of the Cape, and was cultivated by Mr. MILLER, in the year 1750. Prof. MURRAY omits in his 12th ed. of the *Syst. Vegetab.* of LINNÆUS, as does Prof. GMELIN in the last edition of *Linn. Syst. Nat.*

The facility with which this tribe in general is increased by cuttings is well known; this is raised as readily as the others.



MESEMBRYANTHEMUM BARBATUM. BEARDED
FIG-MARIGOLD.



Class and Order.

ICOSANDRIA PENTAGYNIA.

Generic Character.

Cal. 5-fidus. *Petala* numerosa, linearia. *Caps.* carnosa, infera, polysperma.

Specific Character and Synonyms.

MESEMBRYANTHEMUM *barbatum*, foliis subovatis papulosis distinctis, apice barbatis.
Lin. Syst. Vegetab. p. 469.

MESEMBRYANTHEMUM *radiatum*, ramulis prolixis recumbentibus. *Dillen. Hort. Elth. 245. t. 190. f. 234.*

The leaves of this species have small hairs, issuing like rays from their points, whence its name of *barbatum*; there are two others figured by DILLENIUS, whose leaves have a great similarity of structure, and which are considered by LINNÆUS as varieties of this species; our plant is the *Stellatum* of MILLER's *Dict. ed. 6. 4to.*

Like most of this tribe it inhabits the Cape, flowers in July, and is readily propagated by cuttings.



MESEMBRYANTHEMUM BICOLORUM. TWO-
COLOURED FIG-MARIGOLD.

Class and Order.

ICOSANDRIA PENTAGYNIA.

Generic Character.

Cal. 5-fidus. *Petala* numeroſa, linearia. *Caps.* carnoſa, infera, polyſperma.

Specific Character and Synonyms.

MESEMBRYANTHEMUM *bicolorum* foliis ſubulatis punctatis lævibus diſtinctis, caule fruteſcente, corollis bicoloribus. *Linn. Syſt. Vegetab. p.* 470.

MESEMBRYANTHEMUM *tenuifolium* fruteſcens, flora croceo. *Dill. Elth. 267. t. 202. f. 258.*

Contrary to the *Meſembryanthemum dolabriforme*, lately figured in this work, this ſpecies expands its flowers in the day-time and that only when the ſun ſhines powerfully on them; on ſuch occaſions, the bloſſoms on the top of the branches being very numerous, exhibit a moſt ſplendid appearance.

It is a native of the Cape of Good Hope, flowers in July, and is moſt readily propagated by cuttings.

Like moſt of the Cape plants, it requires the ſhelter of a green-houſe during the winter.



2



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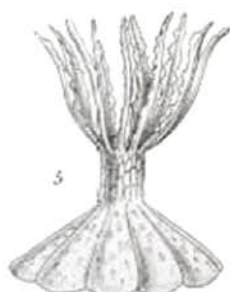
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TAB. 6664.

MESEMBRYANTHEMUM BOLUSII.

Native of South Africa.

Nat. Ord. FICOIDEÆ.—Tribe MESEMBRYEÆ.

Genus MESEMBRYANTHEMUTM, Linn.; (*Benth. et Hook. f. Gen. Pl.* vol. i. p. 863.)

MESEMBRYANTHEMUM *Bolusii*; acaule, late obconicum, 3–4 poll. diameter, glaberrium, glaucum, griseo-virescens, creberrime granulato-punctulatum, foliis (maturis) 2 oppositis crassissimis subhemisphericis v. obscure 3-gonis, facie planis, dorso obscure et obtuse carinatis marginibus obtusis, floribus 1–2 sessilibus 2–3 poll. diam. 2–4-bracteatis, calycis tubo obconico limbo 6-lobo, lobis oblongis obtusis recurvis, petalis perplurimis liberis 2–3-serialibus angustissime linearibus infra medium flavis dein rubris, staminibus numerosissimis multiseriatis calycis lobis duplo longioribus, ovarii vertice late conico 10-sulcato, stylo brevi crasso, stigmatibus 10 crassiuscule filiformibus rugulosis.

This is quite as singular a plant as its ally, *M. truncatellum* (Plate 6077 of this work), but is even more bizarre in form and colour, the almost filiform and most delicate petals contrasting strangely with the lumpy ungainly form of the leaves over which they spread. As a species it appears to be entirely new, nor is it easy to say to which of the sections of the genus under Sonder's arrangement (in Harvey's "Flora Capensis," vol. ii. p. 392) it should be referred, differing as it does from the *Spheroidea* in the leaves not being connate to near the apex, or the petals united at the base; from the *Subquadrifolia* in having only two leaves, and in the many stigmas; and from the *Aloidea* in the leaves being only two, and not attenuate to the apex. The discovery of this singular plant is due to Mr. H. Bolus, F.R.S., a very able South African botanist, who sent plants of it to Kew some years ago. These were exhibited in the Succulent House, from which they suddenly disappeared in 1877. For the specimen here figured I am indebted to Mr. Peacock, of Sudbury House, Hammersmith, whose beautiful collection of Cacti and Aloes was so long deposited by him in the south octagon of the Temperate House for

DECEMBER 1ST, 1882.

the inspection of the public. It flowered in July of this year. He informs me that it was sent with several others from Graham's Town, and that the flower opens by five o'clock.

DESCR. A stemless dwarf succulent plant, consisting at maturity of two fully-formed leaves, placed at right angles to a pair of small withered ones at their bases, and one or two sessile flowers between them. *Leaves* trigonously hemispherical, two inches in diameter, of a dull grey green, covered with minute green pustular spots; face or upper surface nearly flat, back obscurely bluntly keeled and slightly laterally compressed, margins rounded. *Flowers* sessile between the leaves, two to three inches in diameter, with two fleshy oblong trigonous bracts at the base placed at right angles to the leaves. *Calyx-tube* half an inch in diameter, turbinate; lobes six, oblong, revolute. *Petals* very numerous, two-thirds to one and a quarter inch long, in several series, very narrowly linear, almost filiform, spreading and recurved, free at the base, yellow below the middle, dull red beyond it. *Stamens* very numerous, in many series, twice as long as the calyx-lobes. *Ovary* with a low ten-grooved conical crown, ending in a short thick style; stigmas ten, filiform and rugose.—*J. D. H.*

Fig. 1, Bracts; 2, vertical section of flower with the petals removed; 3 and 4, anthers; 5, top of ovary; 6, ovules; 7, single ovule:—*all enlarged.*



M. S. G. & N. P. G. & C.

Vincent, Throckm. Day & Son, Eng.

L. Reeve & Co. London.

TAB. 6985.

MESEMBRYANTHEMUM BBROWNII.

Native of South Africa.

Nat. Ord. FICOIDEÆ.—Tribe MESEMBRYEÆ.

Genus MESEMBRYANTHEMUM, Linn.; (*Benth. et Hook. f. Gen. Pl.* vol. i. p. 853.)

MESEMBRYANTHEMUM *Brownii*; fruticulus compactus, erectus, ramosus, glaberrimus, ramis gracilibus, foliis semipollicaribus teretiusculis acutis subpustulatis pallide glauco-viridibus basi lata insertis, floribus ternis solitariisve 1 poll. latis læte purpureis, demum ochraceis, calycis tubo brevi turbinato, lobis 2 multo majoribus subdolabriformibus dorso cornutis ceteris ovatis obtusis mucronatis, petalis pluriseriatis anguste spathulato-oblancheolatis apice retusis v. obtuse 2-dentatis, staminibus collectis, stigmatibus 5 crassis apicibus subulatis.

According to the arrangement into groups of the species of this vast genus by Pr. Salm Dyck, and as adopted in the Flora Capensis of Harvey and Senders, this beautiful species is technically referable to the *Tenuifloræ* along with *M. coccineum*, Haw. (*M. bicolorum*, Tab. 59, of this work); but, as Mr. N. E. Brown points out to me, its nearest affinity is with *M. polyanthum*, Haw., which is referred in the above work to the group *Scabra*, defined as having scabrous leaves. To add to this confusion, the group *scabra*, which in De Candolle's Prodrômus is placed in the great primary division of the genus with epapulose leaves, is in Salm Dyck's work and in Harvey and Senders, placed in the papulose division. Now the plant named *polyanthum* in the Kew collection has neither papulose nor scabrid leaves (nor are they so described and figured by Salm Dyck), in both which respects *M. Brownii* agrees with it, as it further does in the broad obtuse petals, whereas in all the species of the *tenuiflora* group the petals are slender and acuminate. With regard to scabridity of foliage, Mr. Brown, who has made a study of the genus, assures me that the term scabrid is used in it in a very loose sense, often applying merely to the roughness of leaf-surface produced by drying. These facts suggest the necessity of finding some more scientific classification of the species of this interesting genus than that hitherto adopted.

MARCH 1ST, 1888.

I have named this beautiful species after Mr. Brown, who has taken a great deal of trouble in the determination of the species of this troublesome genus. Mr. Watson, who is charged with the cultivation of the succulent plants at Kew, informs me that the flowers expand only in bright sunlight, and that the change of colour shown in the specimen figured is not accidental, but that the young flowers are invariably of a brilliant lustrous purple, and that they fade into ochreous or reddish yellow.

M. Brownii has been long grown at Kew under the name of *micans*; it flowers in July, and remains long in blossom. How far it may prove distinct specifically from *M. polyanthon*, I am not prepared to say; it differs from Haworth's and other descriptions of that plant in the total absence of scabridity, and from Salm Dyck's figure of it in the erect more shrubby habit and smaller flowers.

DESCR. A small erect much-branched shrub, about a foot high; branches slender, quite glabrous, not articulate at the nodes, covered with brown smooth shining bark. *Leaves* one-half to two-thirds of an inch long, in scattered pairs, or crowded on short lateral branches, terete, acute, fleshy, inserted by a broad base, pale glaucous green, not papillose, but obscurely pustulate with translucent slight prominences, giving an uneven appearance, more pronounced as the leaf dries; youngest leaves obscurely triquetrous or semi-terete. *Flowers* one to one and a quarter inches in diameter, solitary, or in threes at the ends of the branches, where each pedicel has a pair of leaves like the cauline, from deep ochreous red to bright red-purple; pedicels one-half to one inch, slender, hardly swollen below the calyx. *Calyx-tube* short, turbinate; lobes longer than the tube, two larger broader upwards, each produced into two rounded lobes with a short dorsal space between them; three smaller lobes ovate, obtuse, mucronate. *Petals* in several series, spreading from the base, straight, gradually dilated upwards, very narrowly spathulate, tip obtuse retuse or notched, often obliquely. *Stamens* shorter than the calyx, densely crowded. *Stigmas* five, subulate, from a very broad tumid base.—*J. D. H.*

Fig. 1, Leaf; 2, calyx and stamens; 3, petals; 4 and 5, stamens; 6, ovary with the sepals removed, and stigmas:—*all enlarged*.



TAB. 6312.

MESEMBRYANTHEMUM COOPERI.

Native of South Africa.

Nat. Ord. FICOIDÆ.—Tribe MESEMBRYEÆ.

Genus MESEMBRYANTHEMUM, *Linn. (Benth. et Hook. f. Gen. Plant. vol. i. p. 853.)*

MESEMBRYANTHEMUM (*Papulosa*) *Cooperi*; totum creberrime papulosum, glaucum herbaceum, perenne, ramosum, ramis decumbentibus, foliis oppositis patenti-recurvis semi-teretibus linearibus obtusis angulis obtusis facie subconvexa apicibus cylindraceis obtusiusculis glaberrimis, pedunculis terminalibus solitariis brevibus cylindraceis 1-rarissime 2–3-floris, floribus 2½ poll. diametr. calycis tubo obconico lobis tubo æquilongis subacutis patenti-recurvis 2 ceteris longioribus, petalis exterioribus perplurimis 1-seriatis anguste linearibus roseo-purpureis, interioribus (v. staminodiis) multo brevioribus et angustioribus erecto-recurvis, staminibus confertis, antheris stramineis, stigmatibus 5–6 late subulatis.

This is a very handsome and free-growing species of *Mesembryanthemum*, filling a large pot with its blue-glaucous glistening stems and foliage, and bearing a handsome purple flower. It belongs to the *Crassulina* group of the *Papulosa* division, but differs very much from all previously described species, all of which have very slender stems. Its precise habitat is unknown; it was sent by Mr. Cooper when collecting in South Africa for Mr. Wilson Saunders, who, with his usual liberality, presented specimens to Kew, which flower annually in the month of June.

DESCR. A much-branched quite glabrous decumbent glaucous blue herb, forming large masses, clothed everywhere on stem, leaves, and calyx with close-set crystalline papillæ. *Branches* as thick as a duck-quill, cylindric, terete, not thickened at the nodes. *Leaves* rather close-set, opposite, one and a half to two inches long, spreading and recurved, nearly linear, gradually narrowed to the subobtuse apex, semi-terete, the angles of the upper surface rounded, very

AUGUST 1ST, 1877.

soft and fleshy; papillæ in rows, giving a minutely striate appearance to the leaf. *Peduncles* solitary, terminal, one-rarely two- or three-flowered, short, cylindric. *Flowers* two and a half inches in diameter. *Calyx* tube obconic, half an inch long; *lobes* five, spreading, longer than the tube, three of them shorter than the others, semi-terete obtuse or sub-acute. *Petals* of outer series twice as long as the calyx-lobes, very narrow, linear, rose-purple; inner series or staminodes one-third shorter, very narrow, suberect and recurved, also rose-purple. *Stamens* densely crowded in the centre of the flower, forming a small yellow disk about one quarter of an inch in diameter. *Stigmas* four or five, ovate-lanceolate, apiculate, seated on the top of the 5-lobed ovary.—*J. D. H.*

Fig. 1, Apex of leaf; 2, vertical section of flower; 3, top of ovary and stigmas:—*all magnified.*



MESEMBRYANTHEMUM DENSUM. GREAT
BEARDED-LEAVED FIG-MARIGOLD.

Class and Order.

ICOSANDRIA PENTAGYNIA.

Generic Character.

Cal. 5-fidus. *Petala* numerosa, linearia, basi cohærentia, *Capf.* carnosâ, infera, polysperma.

Specific Character and Synonyms.

MESEMBRYANTHEMUM *densum*; foliis femicylindricis apice barbatis confertis, pedunculis hispidis, foliolis calycinis subæqualibus petalis bis brevioribus.

MESEMBRYANTHEMUM *densum*; subacaulis foliis densissime imbricatis connatis femicylindricis, supra concavis apice barbatis, calycibus hexaphyllis subæqualibus hispidis. *Haworth Mesem. p.* 302. *n.* 94.

MESEMBRYANTHEMUM *radiatum humile*, foliis majoribus. *Dill. Elth.* 248. *t.* 190. *f.* 236.

MESEMBRYANTHEMUM *barbatum. g. Sp. Pl.* 691. *Willd. v.* 2. *p.* 1046.

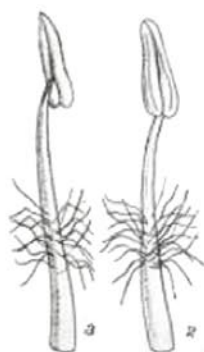
Mr. HAWORTH, the author of a monograph upon this genus has, in our opinion, very properly separated the three varieties of *M. barbatum* in the Species Plantarum into as many distinct species. The first of these is figured above (No. 72) and is at once distinguished from both the others by the leaves being generally so remote, as to shew a considerable space of stalk between each pair, and by the peduncles and calyxes being destitute of hairs.

The second variety, the *M. hirsutum* of HAWORTH, comes much nearer to our present plant but has smaller leaves and flowers,

flowers, and, which affords a good specific difference, has the leaflets of the calyx of unequal length, and much longer in proportion to the corolla than *M. densum*.

This plant, though not of difficult cultivation, is extremely shy of flowering, to much so, that Mr. HAWORTH, to whom we are indebted for the living specimen here figured informs us that it is one and twenty years since he has seen it in blossom.

Native of the Cape of Good Hope. Requires the same treatment as other succulent plants from that country; which conflicts chiefly in taking care that they are not injured by damp in the winter, and in protecting them from frost.



TAB. 8872.

MESEMBRYANTHEMUM DICHROUM.

South Africa.

FICOIDEÆ. Tribe MESEMBRYEÆ.

MESEMBRYANTHEMUM, *Linn.; Benth. et Hook. f. Gen. Plant* vol. i. p. 858.

MESEMBRYANTHEMUM (§ Calaaforia) dichrou, *Rolfe*; species nova e grege Calamiformium foliis triquetris et petalis dichrois facile distinguendum.

Herba breviter caulescens. *Caules* simplices vel parce ramosi, suberecti, 8–9 cm. longi. *Folia* 4–6, patentia, lineari-oblonga, acuta, triquetra, crassa, supra concava, subtus obtuse carinata, glauca, crebre et minute puncticulata, 4–6 cm. longa, 0.6–0.9 cm. lata, margine minutissime denticulata. *Flores* subsessiles, expansi 3.5–4 cm. diametro, albo-rosei. *Calyx* late campanulatus; lobi deltoideo-ovati, acuti. *Petala* numerosissima, patentia, circiter 1.8 cm. longa, basi alba, apice rosea. *Stamina* numerosa, erecta, circiter 1.5 cm. longa; filamenta albidula, infra medium villosa; antherae ovato-oblongae, obtusae, flavae. *Stigmata* 6, subclavata, brevia. —R. A. ROLFE.

This distinct and striking *Mesembryanthemum* was presented to Kew in 1910 along with various other succulent plants by Mr. G. H. Simpson Hayward, Icomb Place, Stoke-on-the-Wold. It has thriven satisfactorily under the treatment given to other species of the genus in a warm greenhouse, where it flowered in November, 1918, when our figure was prepared. Beyond the fact that it is South African nothing is known of its history, for there is no record of the district in which it was collected, and no very near affinity can be found or claimed for this species, which is new alike to horticulture and to science. In most respects *M. dichroum* accords with the members of the section *Calamiformia*, though it is at once distinguishable from all of these by having distinctly triquetrous in place of subterete leaves and in having petals with bright pink apices. It appears on the whole more satisfactory to include our plant provisionally among the *Calamiformia*, though as a somewhat anomalous member of the section, than to regard it as the type of a distinct section, though this

OCTOBER-DECEMBER, 1920.

may eventually be found to be necessary. *M. dichroum* is a pleasing addition to the succulents in cultivation owing to the colouring of the petals. It is a dwarf plant with very glaucous linear-oblong leaves and with shortly pedicelled flowers; the petals, otherwise white, are strongly suffused with pink towards their tips.

DESCRIPTION.—*Herb*, with short simple or sparingly branched suberect stems, $3-3\frac{1}{2}$ in. high. *Leaves* 4–5, spreading, linear-oblong, acute, 3-quetrous, thick, concave above, bluntly keeled beneath, glaucous, closely and finely toothed. *Flowers* nearly sessile, $1\frac{1}{2}-1\frac{3}{4}$ in. across, white flushed with rose-pink. *Calyx* wide campanulate; lobes deltoid ovate, acute. *Petals* very many, spreading, about $\frac{3}{4}$ in. long, white below, rose-pink at the tips. *Stamens* many, erect, about $\frac{2}{3}$ in. long; filaments whitish, villous below the middle; anthers ovate-oblong, obtuse, yellow. *Stigmas* 6, subelavate, short.

TAB. 8872.—Fig. 1, portion of a leaf, showing the apex; 2 and 3, stamens; 4, apex of ovary, with stigmas:—*all enlarged*.



MESEMBRYANTHEMUM DOLABRIFORME,
HATCHET-LEAV'D FIG-MARIGOLD

Class and Order.

ICOSANDRIA PENTAGYNIA.

Generic Character.

Cal. 5-fidus. *Petala* numerosa, linearia, *Capf.* carnofa, infera, polysperma.

Specific Character and Synonyms.

MESEMBRYANTHEMUM *dolabriforme* acaule foliis dolabri-
formibus punctatis. *Lin. Syst. Veg.*
p. 470.

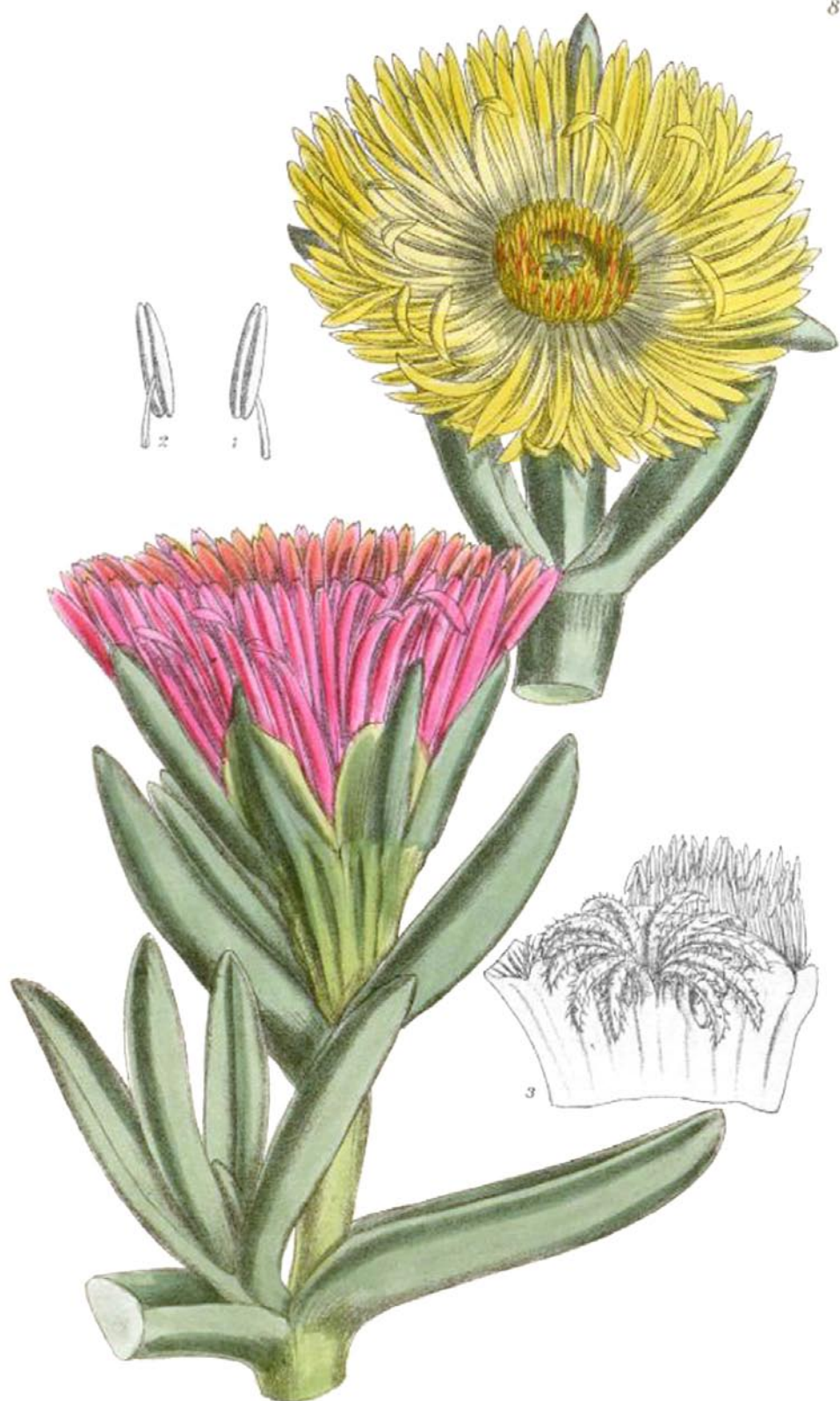
FICOIDES *capensis humilis*, foliis cornua cervi referentibus, petalis
luteis noctiflora. *Bradl. suc.* I. *p.* II. *t.* IO. *Dillen Hort.*
Elth. t. 191. *f.* 237

Though many Latin names of plants, as *Geranium*, *Hepatica*, *Convolvulus*, &c. are more familiar to the ear, and more generally used than their English ones, yet *Mesembryanthemum* though used by some, appears too long, to be generally adopted, its English name of *Fig-marigold* is doubtless to be preferred.

The Fig-marigolds are a very numerous tribe, chiefly inhabitants of the Cape of Good hope; no less than thirty-three species are figured in that inestimable work the *Hortus Elthamensis* of Dillenius. As most of these plants grow readily from slips, or cuttings, and require only the shelter of a common greenhouse, and as they recommend themselves to our notice, either from the extreme singularity of their foliage, the beauty of their flowers, or the peculiarity of their expansion, so they are a favourite class of plants with many.

The present species is a native of the Cape of Good hope, and is particularly distinguished by having leaves somewhat resembling a hatchet, whence its name; it is as hardy as most, and flowers as freely, but its blossoms fully expand in the evening and night only.

It is very readily propagated by cuttings.



MS. and Bot. Garden.

Vincent Brooks Day & Son, Amp.

L. Reeve & Co. London.

TAB. 8783.

MESEMBRYANTHEMUM EDULE.

South Africa.

FICOIDEAE. Tribe MESEMBRYANTHEMEAE.

MESEMBRYANTHEMUM, Linn.; *Benth. et Hook. f. Gen. Plant.* vol. i. p. 858.

Mesembryanthemum (§ Acinaciformia) **edule**, Linn. *Sp. Pl.* ed. 2, p. 695; Ait. *Hort. Kew.* ed. 1, vol. ii. p. 190; Haw. *Obs. Mesemb.* p. 392; Brongn. in *Ann. Sc. Nat.* sér. 3, vol. xviii. p. 234, 250, t. 10, fig. 25–28; Harv. et Sond. *Fl. Cap.* vol. iii. p. 412; Bolus et Wolley-Dod in *Trans. S. Afr. Phil. Soc.* vol. xiv. p. 265; Berger, *Mesemb.* pp. 208, 204, fig. 40, 1–5; Marloth, *Pl. S. Afr.* vol. i. p. 203, t. 50, fig. A, etiam in textu, fig. 92; N. E. Br. in *Gard. Chron.* 1885, vol. xxiv. pp. 145, 266; J. Hutchinson in *Gard. Chron.* 1917, vol. lxii. p. 31; species a *M. acinaciforme*, Linn., foliis subaequaliter triquetris oblongis nec obovato-oblongis, et floribus flavis vel senescentibus carneis nec violaceo-rubris statim distinguenda.

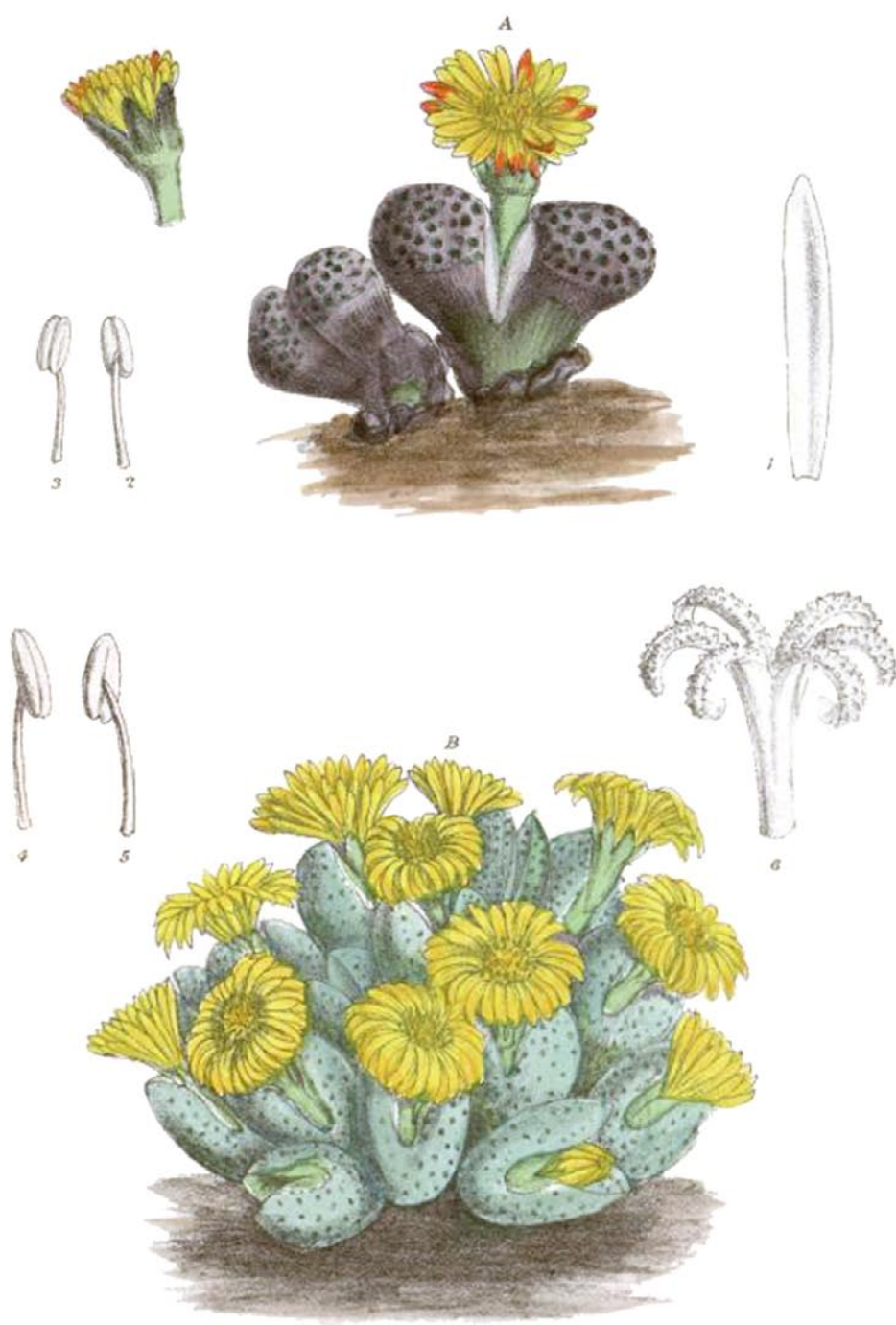
Herba succulenta, valde ramosa, procumbens vel pendula, 0·5–1 m. longa, ramulis crasiusculis angulatis. *Folia* opposita, sessilia, oblonga, subobtusata, subaequaliter triquetra, subincurva, crasso-carnosa, viridia, 4–7 cm. longa, circiter 1 cm. lata. *Flores* terminales, solitarii, 7–8 cm. diametro, primum flavi demum carnei. *Calycis* tubi turbinatus, 2–2·5 cm. longus; lobi inaequales, ovati vel oblongi, subobtusati, 2–8 cm. longi. *Petala* patentia, numerosissima, lineari-oblonga, flava sed senescentia carnea. *Stamina* numerosissima, brevissima; antherae lineari-oblongae, flavae. *Stigmata* subsessilia, numerosa, reflexa. *Fructus* turbinatus, grandis, edulis.—*M. acinaciforme*, var. *flavum*, Linn. *Sp. Plant.* ed. 1, p. 485. *M. falcatum majus flore amplo luteo*, Dill. Hort. Eltham. p. 283, t. 212, fig. 212, 272 (1782). *M. sive Flos meridianus Africanus triangulari folio frutescens maximus procumbens frutu turbinato edule flore luteo*, Breyn. *Podr.* vol. ii. p. 67 (1689). *Chrysanthemum Aisoides Africanus triangulari folio flore aureo*, Breyn. *Exot. Pl. cent.* i. p. 163 (1678).—R. A. ROLFE.

No *Mesembryanthemum* to be met with in succulent collections is more handsome than the long known *M. edule*, figured here from material obtained by Mr. J. Hutchinson on the face of an old quarry at the entrance to Caerthillian Valley in Cornwall, where it is thoroughly naturalised in company with the Australian and Chilean species *M. aequilaterale*, Haw. A native of South Africa, *M. edule*, in most parts of Britain, requires the protection of a greenhouse during winter. But in certain localities in Cornwall, South Devon and Jersey, it is now established
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as an alien, and in those parts of the United Kingdom with a similar climate the species is hardy and is seen to best advantage when planted along the top of a low wall and allowed to hang down. It thrives best if planted in poor sandy soil, and may be propagated with ease by cuttings taken at any season. The nearest ally of *M. edule* is another Cape species, *M. acinaciforme*, Linn., figured at t. 5539 of this work. The two are readily distinguished, when alive, by their differently coloured flowers and their differently shaped leaves. As seen in dried specimens, however, they are not always easily discriminated, and when Linnaeus enumerated both in 1753 he regarded them as varieties of one species. Ten years later Linnaeus recognised the species now described as distinct, and this judgment has never since been challenged. *M. edule* and *M. acinaciforme*, together with the somewhat similar *M. aequilaterale* which, however, is confined to the Pacific coasts of America and to Australia, but does not occur in S. Africa, were grouped by Haworth in the section *Acinaciformia*, which, as Marloth points out, differs from all other sections of the genus in bearing fleshy fruits—in the S. African species known as Zuurvvygen or Hottentot figs—with numerous small seeds embedded in a subacid edible pulp; in other sections the fruits are dry capsules. The cultural history of *M. edule* began long before it received that name. In 1732 it was, as a figure by Dillenius shows, in the garden of Sherard at Eltham. Moreover it was, as Dillenius knew, in the Breynian collection; Breyn tells us it was in his garden in Holland in 1668.

Description.—*Herb*, succulent, much branched, prostrate or pendulous, 2–4 ft. long, with rather stout angular branches. *Leaves* opposite, sessile, oblong, rather blunt, more or less 3-gonous, somewhat incurved, thickly fleshy, green, $1\frac{1}{4}$ –3 in. long, over 3 in. wide. *Flowers* terminal, solitary, about 3 in. across, yellow when they open, changing later to flesh-coloured. *Calyx* with a turbinate tube, $\frac{3}{4}$ –1 in. long; lobes ovate or oblong, rather blunt, unequal, $\frac{3}{4}$ – $1\frac{1}{4}$ in. long. *Petals* spreading, very many, linear-oblong. *Stamens* very many, short; anthers linear-oblong, yellow. *Stigmas* subsessile, numerous, reflexed. *Fruit* turbinate large, edible.

TAB. 8783.—Fig. 1, stamen seen from in front; 2, the same, seen from behind 3, section of calyx-tube, showing tamens and stigmas:—*all enlarged*.



TAB. 8776A.

MESEMBRYANTHEMUM FULVICEPS.

South Africa.

FICOIDEAE. Tribe MESEMBRYANTHEMEAE.

MESEMBRYANTHEMUM, *Linn.*; *Benth. et Hook. f. Gen. Plant.* vol. i. p. 853.

Mesembryanthemum (§ *Sphaeroidea*) **fulviceps**, *N. E. Br. in Kew Bull.* 1914, p. 167; affine *M. Lesliei*, *N. E. Br.*, fissura inter folia multo profundiore et apicibus foliorum fulvis maculis parvis rotundatis atroviridibus notatis apte tamen distinguenda.

Herba succulenta, perparva, acaulis; radix descendens, elongata. *Folia* 2, in corpusculum ultra medium connata. *Corpuacula* subsolitaria vel sub-caespitosa, 2·5–4·5 cm. longa, obconica, laevia glabra, apice 2·5–2·8 cm. lata, truncata, fissura transversa notata, fulva, maculis parvis rotundatis sordide atroviridibus ornata, lateribus leviter purpureo-cinerascentia opaca; fissura 7–8 mm. alta. *Flores* breviter pedicellati, 2·5 cm. diametro. *Calyx* circiter 1 cm. longus, 5-lobus; tubus breviter exsertus; lobi oblongi, obtusi, 0·5–0·6 cm. longi. *Petala* patentia, linearia, obtusa, circiter 1·2 cm. longa, lutea versus apicem rubro-aurantiaca. *Stamina* suberecta filamenta gracilia; antherae ellipsoideae.—R. A. ROLFE.

The little *Mesembryanthemum* here figured is a member of the *Sphaeroidea* section of the genus, characterised by the leaves being reduced to a single pair, united to form a more or less globose or ovoid mass termed a “corpusulum.” It is a native of Great Namaqualand, where it was collected by the late Professor H. H. W. Pearson of Cape Town in the course of the Percy Sladen Expedition to the Great Karasberg Range. In its native habitat it grows on sandy plains at an elevation of 4,300 feet above the sea. Living plants were presented to Kew by Professor Pearson in the early part of 1913, and had not yet flowered when in June, 1914, a description of the species was published by Mr. N. E. Brown. In October, 1915, however, a plant flowered in the collection of succulents at Kew and admitted of the preparation of our illustration. The nearest ally of this Namaqualand plant is *M. Lesliei*, *N. E. Br.*, a native of the Transvaal in which, however, the leaves are more completely confluent into

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an obovoid truncate corpusculum with markings of a somewhat reticulated character, while the petals are longer, more reflexed and relatively narrower.

DESCRIPTION.—*Herb*, fleshy, small and stemless, with a rather long tap-root. *Leaves* 2, connate beyond their middle to form a fleshy corpuscle. *Corpuscles* at times 1–2, at times several and caespitose, obconic, $1-1\frac{3}{4}$ in. long, truncate and about 1 in. wide at the top, which is marked by the transverse fissure due to the incomplete union of the component leaves, smooth, glabrous, with small rounded dark green spots on the tawny apical surface, uniformly dull grey-purple on the sides; the transverse fissure about $\frac{1}{3}$ in. deep. *Flowers* shortly pedicelled, 1 in. across. Calyx over $\frac{1}{3}$ in. long, 5-lobed; tube shortly exerted; lobes oblong, obtuse, about $\frac{1}{4}$ in. long. *Petals* spreading, linear, obtuse, about $\frac{1}{2}$ in. long, yellow with orange-red tips. *Stamens* suberect; filaments slender; anthers ellipsoid.

TAB. 8776A.—Fig. 1, petal; 2 and 3, stamens:—*all enlarged*.

TAB. 8776B.

MESEMBRYANTHEMUM ELISHAE.

South Africai

FICOIDEAE. Tribe MESEMBRIANTHEMEAE.

MESEMBRYANTHEMUM, *Linn.*; *Benth. et Hook. f. Gen. Plant.* vol. i. p. 858.

Mesembryanthemum (§ Cordiformia) **Elishae**, *N. E. Br. in Gard. Chron.* 1916, vol. lx. p. 252; affine *M. styloso*, *N. E. Br.*, sed foliis punctatis multo brevioribus et stylis valde recurvis differt.

Herba succulenta, nana; radix descendens. *Folia* 2, in corpusculum semi-connata. *Corpuscula* dense caespitosa, 1·4–2·5 cm. longa, 1·2–2 cm. crassa, subobovoidea, apice valde compressa lobis erectis carinatis, glabra, coeruleo-viridia, obscure punctata. *Flores* breviter pedicellati, 2·1 cm. diametro. *Calyx* 3–5-lobus, submembranaceus, pallide virescens lobis rubescentibus. *Petala* 35–45, 3-seriata, linearia, apice 2-fida vel obtusa, inferne in tubum connata, lutea. *Stamina* indefinita, lutea. *Stigmata* 5–6, filiformia, pallide lutea, inferne in stylum columnarem connata.—
R. A. ROLFE.

The small *Mesembryanthemum* now figured is a member of the section *Cordiformia*, based originally by Mr. A. Berger on *A. bilobum*, Marloth, but which is now known to include at least three other species: *M. gracilipes*, Bolus; *M. stylosum*, *N. E. Br.*, figured at t. 8595B of this work; and *M. Elishae*, the species here described. The section is characterised by the very fleshy, somewhat elongated leaves being more or less united at the base but remaining free above so that the resulting corpusculum is more or less heart-shaped. The precise habitat of this species in South Africa has not been recorded. It appeared originally in this country in the collection of Mr. G. Elisha, Canonbury Park Road, a keen cultivator of species of *Mesembryanthemum*. The specimen here depicted flowered with Mr. Elisha in October, 1916, and was described by Mr. N. E. Brown. Since then Mr. Elisha has presented a plant to Kew. Mr. Brown has remarked that the nearest allies of *M. Elishae* are *M. bilobum* and *M. stylosum*, but it differs from both in its dwarfer and relatively shorter growths, which form

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very compact clusters. The neat habit and the markedly glaucous green with scattered darker dots of the half-connate leaves give it a pleasing appearance. The flowers are bright yellow, expanding in full sunshine and closing at night.

DESCRIPTION.—*Herb*, succulent, dwarf; root descending. *Leaves* 2, connate to their middle to form a fleshy corpuscle. *Corpuscles* densely tufted, $\frac{2}{3}$ –1 in. long, $\frac{1}{2}$ – $\frac{3}{4}$ in. thick, somewhat obovoid, much compressed at the apex with erect keeled lobes, glabrous, bluish-green, indistinctly marked with darker dots. *Flowers* shortly pedicelled, $\frac{3}{4}$ in. across. *Calyx* 3–5-lobed, somewhat membranous, pale green with the lobes becoming reddish. *Petals* 35–45, 3-seriate, linear, 2-fid or obtuse at the tip, connate below in a tube, bright yellow. *Stamens* many, yellow. *Stigmas* 5–6, filiform, pale yellow, connate below in a columnar style.

TAB. 8776B.—Fig. 4 and 5, stamens; 6, pistil:—*all enlarged*.



MESEMBRYANTHEMUM INCLAUDENS,
NEVER-CLOSING FIG MARIGOLD.

Class and Order.

ICOSANDRIA PENTAGYNIA.

Generic Character.

Cal. 5-fidus. *Petala* numerosa, linearia, basi cohærentia, *Capf.* carnosâ, infera, polysperma.

Specific Character and Synonyms.

MESEMBRYANTHEMUM *inclaudens*; foliis dolabriformibus acie crenulata, corollis semper apertis: petalis interioribus teretibus abbreviatis.

MESEMBRYANTHEMUM *inclaudens*; foliis triquetris subdeltoidibus lævibus perviridibus, carina gibbosa, corollis includentibus, petalis interioribus valde abbreviatis imbricatisque. *Haworth Syn. Succul. p. 295. Idem in Bot. Repos. 388.*

This is one of the most desirable species of this numerous genus, both on account of the brilliancy of its flowers and because they remain fully expanded, night and day. Flowering branches when cut off will continue unchanged for days together; so that they may be worn in the hair or bosom, without danger of drooping from the heat of the ball-room; but they are without scent. There are several other species which have their blossoms always expanded, all of which, Mr. HAWORTH remarks, are well adapted to the above purpose; and if fragrance be an object, the addition of some of the night-flowering species will supply that also.

The

The redness of the leaves and branches depends much upon the plant's being exposed to sun and air, though the apex of the leaves and part of the stems in the neighbourhood of the joints, under all circumstances, shew a greater or less tinge of this colour.

Native of the Cape of Good Hope. Flowers in June, July, and August. Introduced about the year 1802. Requires to be protected from frost and from damps. Communicated by the Hon. WILLIAM HERBERT.



W. Fitch, del. et lith.

Vincent Brooks Day & Son, Imp.

TAB. 6057.

MESEMBRYANTHEMUM INTRORSUM.

Native of South Africa.

Nat. Ord. FICOIDEÆ.—Tribe MESEMBRYEÆ.

Genus MESEMBRYANTHEMUM, *Linn.*; (*Benth. and Hook. f. Gen. Pl.*,
vol. i. p. 853).

MESEMBRYANTHEMUM *introrsum*; ramulis effusis erecto-decumbentibus, junioribus hispidulis foliisque minute celluloso-tessellatis, foliis remotis $\frac{1}{2}$ -cylindraceis patenti-recurvis apice sepalisque penicillatim barbatulis, setis ad 10 badiis, floribus terminalibus solitariis gracile pedunculatis, calycis tubo turbinato, lobis subcylindraceis duobus majoribus, petalis sub-2-seriatis radiantibus anguste linearibus ochraceis vitellinis roseis v. rubris, filamentis albis externis anantheris, stigmatibus 5 minutis conico-recurvis.

MESEMBRYANTHEMUM *introrsum*, *Haworth in Phil. Mag.*, 1824, p. 428. *ex DC. Prod.*, vol. iii. p. 440. *Salm Dyck, Monog. Mesemb.*, fasc. 52, f. 2. *Harv. and Sond. Fl. Cap.*, vol. iii. p. 446.

There are many good reasons for encouraging the cultivation of the once favourite genus *Mesembryanthemum*, amongst which not the least is their duration, for when once established they need never be lost; they are further ever-green, cost little in soil and cleaning, and many of them are amongst the most brilliantly coloured greenhouse plants. The subject of the present plate has been established at Kew for at least half a century. The first notice I find of it is in the work of Haworth, quoted above, who states that it was cultivated in Kew in 1824. I do not, however, find it described in the second edition of "Hortus Kewensis," published in 1811, where 175 species are enumerated as then in cultivation in the Royal Gardens; a number reduced in 1855 to 157, and now increased to 225, including some varieties and species that have not yet flowered. Upwards of 300 species are described from the Cape alone, in Harvey and Sonders' Flora.

DESCR. *Stem* branched from the base; branches a foot and more long, at first erect, then prostrate or pendulous, as
SEPTEMBER 1ST, 1873.

thick as a sparrow quill, and like the surface of the leaves tessellated and papillose with bladdery cells; young parts minutely hispid, each papilla bearing a bristle. *Leaves* in distant pairs, about one inch long, somewhat recurved, semi-terete, with very rounded sides, tipped with a pencil of about ten spreading brown bristles, connate at the base, light green, fleshy. *Flowers* three-fourths of an inch in diameter, on long slender terminal peduncles. *Calyx-tube* turbinate hemispheric, obscurely obtusely angled, green; limb of five spreading and recurved segments like the leaves, of which two exceed the petals, and are tipped like the leaves with bristles. *Petals* biseriate, the inner shorter, narrow linear, obtuse, very various in colour, white fading to rose-colour, or ochreous, or red. *Stamens* short, filaments white; the outer with imperfect anthers. *Stigmas* five, small, short, conic, recurved.—*J. D. H.*

Fig. 1, Portion of stem and leaves; 2, vertical section of flower; 3, stigmas:—*all magnified.*



MESEMBRYANTHEMUM MICANS. GLITTER-
ING FIG-MARYGOLD.

Class and Order.

ICOSANDRIA PENTAGYNIA.

Generic Character.

Cal. 5-fidus. *Petala* numerosa, linearia, *Capf.* carnosu, infera, polysperma.

Specific Character and Synonyms.

- MESEMBRYANTHEMUM *micans* foliis subcylindricis papulosis distinctis, caule scabro. *Linn. Syst. Veg. ed.* 14. *Murr. p.* 470. *Ait. Kew. v. 2. p.* 190.
- MESEMBRYANTHEMUM *micans* flore phœniceo: filamentis atris. *Dill. Elth.* 292. *t.* 215. *f.* 1282.
- FICOIDES capensis, tereti folio, flore croceo. *Pet. gaz. t.* 7. *f.* 9.
- FICOIDES capensis, folio tereti argenteo, petalis per plurimis aurantiacis. *Bradl. Succ.* 1. *p.* 9 *t.* 8.

The *Mesembryanthemum micans*, so called from the glittering particles, which are conspicuous on its stalks and leaves, is a species which has long been introduced to our gardens (having been cultivated by Prof. BRADLEY in 1716) for the beauty of its flowers, which in richness of colour are indeed surpassed by few; they are produced in the months of July and August but do not expand fully, unless the sun shines powerfully on them; nor do they long retain that regular expansion observable in some species, but quickly assume a somewhat ragged appearance; nevertheless, upon the whole, it is one of those species which is highly deserving of culture, by those who are partial to this tribe of plants.

It is a native of the Cape, and readily propagated by cuttings. Varies with flowers of a paler hue.



MESEMBRYANTHEMUM MINUTUM. TINY
FIG-MARIGOLD.

Class and Order.

ICOSANDRIA PENTAGYNIA.

Generic Character.

Cal. 5-fidus. *Petala* numerosa, linearia, basi cohærentia, *Capf.* turbinata, infera, polysperma.

Specific Character and Synonyms.

MESEMBRYANTHEMUM *minutum*; acaule, subglobosum, apice concavo floriferum, corolla infundibuliformi.

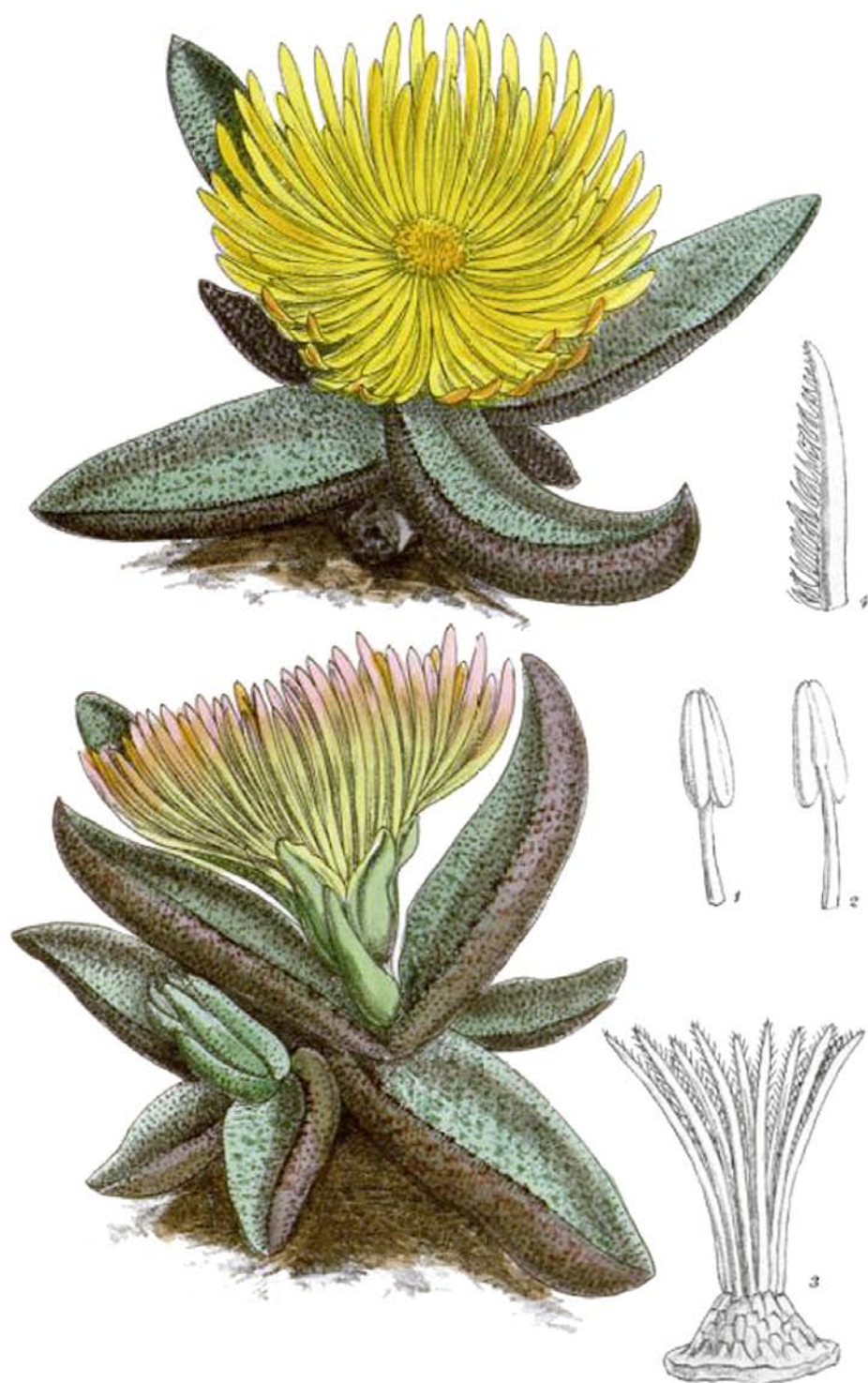
MESEMBRYANTHEMUM *minutum*; (acaule, obconicum, floribus sessilibus) læve glaucum immaculatum, petalis læte rubicundis. *Haworth Mesemb. p.* 126. *Misc. Nat. p.* 1.

The petals in this genus for the most part slightly cohere at the base; in some they form a short tube; but in this species they unite into a tube above a quarter of an inch in length, narrowing downwards so as to give the corolla somewhat the form of a funnel. The plant consists of a congeries of fleshy knobs, roundish, hollowed at the apex. From the centre of this depression the flower is produced. "HAWORTH considers these button-like substances as the leaves, WILLDENOW, in a nearly-related species (*minimum*) as the stems. The former of course characterizes it as *acaule* or stemless, the latter would call it *aphyllum* or leafless.

What renders this elegant little vegetable the more acceptable is, that it produces its lively flowers from the middle of November to near Christmas.

Our specimen was kindly communicated by Mr. HAWORTH, from his very extensive collection at Little Chelsea. This adds to the value of our figure, from the certainty of its representing the plant intended by the intelligent author of the monograph on this genus.

Native of the Cape of Good Hope. Requires to be defended from frost, and, after it has done flowering, to be kept without water during the rest of the winter.



M. Sedl. J. N. Fitch lith.

Vincent Brooks Day & Son Lith.

L. Reeve & Co. London

TAB. 8814.

MESEMBRYANTHEMUM NOBILE.

South Africa.

FICOIDEAE. Tribe MESEMBRYEAE.

MESEMBRYANTHEMUM, *Linn.; Benth. et Hook. f. Gen. Plant.* vol. i. p. 853.

Mesembryanthemum (§ *Magnipuncta*) nobile, *Haw. in Phil. Mag.* vol. lxii. (1823), p. 381; *DC. Prodr.* vol. iii. p. 419; *Salm-Dyck, Mesemb.* fasc. iv. t. 1; *Harv. & Sond. Fl. Cap.* vol. ii. p. 396; *Berger, Mesemb.* pp. 263, 264, fig. 56; species *M. magnipunctato*, *Haw.*, valde affinis, foliis angustioribus subfalcatitis et magis glaucescentibus differt.

Herba parva, acaulis. Folia 4–6, basi connata, patentia vel subrecurva, oblonga, subobtusata, crassa, supra planiuscula, subtus subtriquetra, 4–6 cm. longa, 1·3–1·5 cm. lata, glaucescentia, crebre viridi-punctata. *Flores* subsessiles, speciosi, 5–6 cm. diametro. *Pedunculi* subobsoleti, crassi, bractei duabus carnosissubfoliaceis instructi. *Calyx* subglobosus, circiter 2 cm. longus, 5–6-fidus; lobi lanceolato-oblongi, subobtusati, carnosissimi. *Petala* pluriserialia, linearia, aurea, 2·5–3 cm. longa. *Stamina* numerosa; antherae oblongae. *Ovarium* subglobosum, supra conicum, verruculosum; styli circiter 16, erecti, subulati, facie plumulosi.—*M. magnipunctatum*, var. *affine*, *Haw. Revis. Pl. Suce.* p. 87.—R. A. ROLFE.

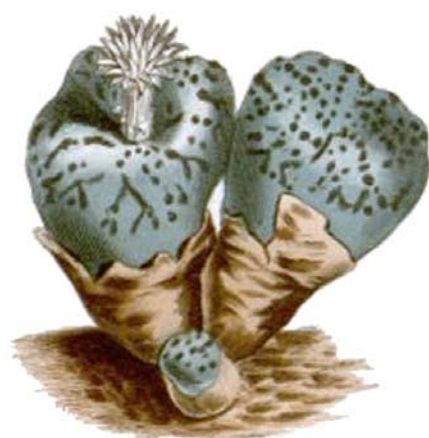
The section *Magnipuncta*, recognised by Haworth within the large and polymorphic genus *Mesembryanthemum*, includes only two forms, the original *M. magnipunctatum*, *Haw.*, and the one now figured, which Haworth at first was inclined to regard as only a variety of *M. magnipunctatum*, but at a later date treated as a distinct species, *M. nobile*. The original *M. magnipunctatum* was based on a plant collected by Burchell and cultivated at Kew nearly a century ago. There is a coloured drawing in the Herbarium collection of a flowerless example which was collected on the heights near the Zekoe River by Bowie in 1818. When Haworth indicated the existence of the variety *nobile*, he tentatively referred to that variety the plant regarded by Prince Salm-Dyck as *M. magnipunctatum*, and this plant became the type of *M. nobile*, *Haw.*, in 1823. There is at Kew a coloured drawing of Haworth's second species which is noted as having been received from Prince Salm-Dyck. The

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plant shown in that drawing is again without blossom, but the species was afterwards figured in Salm-Dyck's monograph. Salm-Dyck obtained his plant in 1814 from Vienna. Since then *M. nobile* has been collected at the Gamka River, Prince Albert Division, Cape Colony, by Zeyher, and, according to Berger, it has also been met with by Marloth in the adjacent Beaufort West Division. Plants both of *M. magnipunctatum* and *M. nobile* were presented to Kew in 1916 by Mr. Cecil Hanbury, from the La Mortola collection, and the figure of the latter now given has been prepared from the La Mortola example, which agrees well in its essential characters with those of Bowie and Salm-Dyck. The differences between the two allied species are well shown by the examples of each now grown at Kew, where they thrive well and flower in summer in a green-house.

DESCRIPTION.—*Herb*, small and stemless. *Leaves* 4–6, connate at the base, spreading or slightly recurved, oblong, rather blunt, thick, flattish above, slightly angled beneath, $1\frac{1}{4}$ – $2\frac{1}{4}$ in. long, $\frac{1}{2}$ – $\frac{2}{3}$ in. wide, glaucescent, closely dotted with green spots. *Flowers* almost sessile, showy, 2 – $2\frac{1}{4}$ in. across. *Peduncles* nearly obsolete, thick, with two fleshy bracts resembling the leaves. *Calyx* nearly globose, about $\frac{3}{4}$ in. long, 5–6-lobed; lobes lanceolate-oblong, rather blunt, fleshy. *Petals* several-seriate, linear, golden-yellow, 1 – $1\frac{1}{4}$ in. long. *Stamens* many; anthers oblong. *Ovary* nearly globose, conical upwards, finely verrucose; styles about 16, erect, subulate, slightly plumose on the face.

TAB. 8814.—Fig. 1, stamen, seen from in front; 2, the same, seen from behind; 3, apex of the ovary, with styles; 4, a stigma:—*all enlarged*.



MESEMBRYANTHEMUM OBCORDELLUM. HEART-SHAPED FIG-MARIGOLD; OR GLAUCOUS CHECQUERED DUMPLIN.

Class and Order.

ICOSANDRIA PENTAGYNIA.

Generic Character.

Cal. 5-fidus. *Petala* numerosa linearia, basi cohrentia, *Caps.* carnosae, inferae, polysperma.

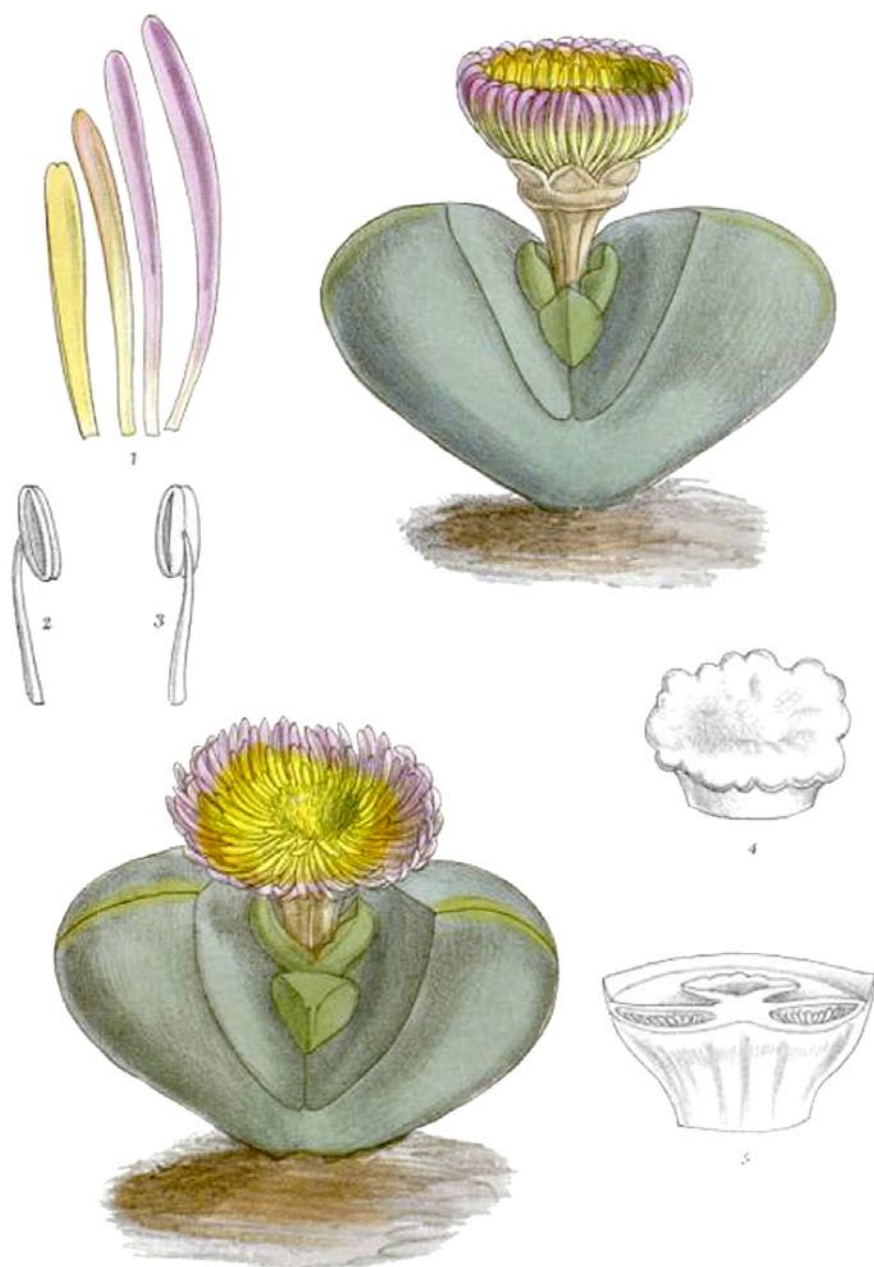
Specific Character and Synonyms.

MESEMBRYANTHEMUM *obcordellum*; (acaulis) glaucescens, corolla albicante maculis confluentibus ramosis germine incluso. *Haworth Misc. Nat.* 21. *Ejusdem Syn. Pl. Succulent.* p. 203. *Hort. Kew. ed. alt.* 3. p. 213.

This curious little MESEMBRYANTHEMUM was communicated by the Comtesse DE VANDER, from her collection at Bayes-Water, in 1811.

We believe it has never been before figured, nor was it noticed by any botanical author, till Mr. HAWORTH described it in his *Miscellanea Naturalia*.

Native of the Cape of Good Hope. Introduced about the year 1794, by Mr. FRANCIS MASSON. Should be kept near the sloping lights of a good greenhouse, and watered very sparingly, and in the winter very seldom. Propagated by offsets.



TAB. 8463.

MESEMBRYANTHEMUM PEARSONII.

South Africa.

FICOIDEAE. Tribe MESEMBRYEAE.

MESEMBRYANTHEMUM, Linn.; *Benth. et Hook. f. Gen. Plant.* vol. i. p. 853.

Mesembryanthemum Pearsonii, *N. E. Brown in Kew Bulletin*, 1912, p. 277; affinis *M. testiculari*, Ait., sed foliis multo majoribus, calyce supra folis exserto et floribus bicoloribus differt.

Herba perennis succulenta, 4·5 cm. alta. *Folia* 2, basi connata, patulo-adscendentia, 3·5–4 cm. longa, 4·5 cm. lata, 2·5 cm. rassa, facie interiora subplana, marginibus subacutis, subtus vel dorso subgibboso-convexa et leviter carinata, vertice leviter convexa, obtusissima, laevisima, glabra, alba, haud glauca. *Flos* solitarius, inter folia terminalis. *Pedunculus* exsertus, 2·5 cm. longus, validus, compressus, erectus, quadri-bracteatus, glaber. *Bractee* inferiores 1·5 cm. longae, 0·8 cm. latae, 0·8 cm. crassae, subacute trigonae, obtusae, superiores minores, laeves, glabrae, albae. *Calyx* 1·3 cm. diametro, 6-lobus, glaber; lobi 3–4 mm. longi, 5 mm. lati, latissime ovati, obtusi. *Corolla* 3–3·2 cm. diametro, bicolor; petala 3–4-seriata; exteriora circiter 1·3 cm. longa, linearia, obtusa, pulchre purpurea; interiora gradatim minora, subochraceo-lutea, rubro-striata. *Stamina* numerosissima, patula, in annulum congesta; filamenta alba; antherae pallide luteae. *Styli* nulli; stigmata sessilia, magna, 5 mm. diametro, disciformia, obscure crenata.—N. E. BBROWN.

The very distinct and striking *Mesembryanthemum* of which a figure is given here, was collected in 1910 by Mr. Pillans on the eastern slope of a ridge about twelve miles south of Nieuwerust, during the expedition to the Orange River led on behalf of the Percy Sladen Trustees by Professor Pearson. The plant was received at Kew from Professor Pearson, in whose honour it is named, in the spring of 1911, and flowered in a sunny frame during the summer of the same year, thereby allowing the preparation of our illustration. As a species it is most closely allied to *M. testiculare*, Ait., but the leaves are nearly twice as large and the calyx is exserted to about the level of the leaf-tips. In habit, size and form it also approaches *M. Bobussii*, Hook. f., but it differs very markedly in having smooth

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and very white, though not glaucous, leaves as well as in having more exserted flowers and in being without any style. In the absence of a style and in having a large sessile discoid stigma, *M. Pearsonii* differs from all other species known to Mr. Brown by their flowers, though it is not impossible that in *M. testiculare*, of which flowers have not been seen, the same arrangement may exist. The flowers of *M. Pearsonii* appear to expand at night or in the very early morning, becoming more or less closed during the day. In colour they are somewhat peculiar, two or three of the inner series of petals being of a dull yellow colour, more or less streaked with purple, the petals of the outermost series being entirely mauve-purple. In cultivation *M. Pearsonii* requires the conditions suited to *M. Bolusii*, *M. testiculare* and the other species which have very thick succulent leaves.

DESCRIPTION.—*Herb*, perennial, succulent, $1\frac{1}{2}$ –2 in. high. *Leaves* 2, connate at the base, between ascending and spreading, $1\frac{1}{4}$ – $1\frac{1}{2}$ in. long, $1\frac{3}{4}$ in. wide, 1 in. thick, almost flat on the inner face, somewhat gibbously convex and slightly keeled on the outer, the margin subacute, the apex slightly convex, quite blunt, everywhere quite smooth, glabrous, whitish but not glaucous. *Flower* solitary, terminal between the leaves; peduncle exserted, 1 in. long, stout, compressed, erect, 4-bracteate, glabrous; lower bracts $\frac{2}{3}$ in. long, $\frac{1}{3}$ in. wide and $\frac{1}{3}$ in. thick, somewhat sharply trigonous, obtuse; the upper bracts smaller, smooth, glabrous, whitish. Calyx $\frac{1}{2}$ in. wide, 6-lobed, glabrous; lobes $\frac{1}{8}$ – $\frac{1}{6}$ in. long, $\frac{1}{5}$ in. wide, very broadly ovate, obtuse. *Corolla* about $1\frac{1}{4}$ in. across; petals 3–4-seriate, the outer about $\frac{1}{2}$ in. long, linear, obtuse, mauve-purple; the inner progressively smaller, somewhat dull yellow streaked with purple. *Stamens* very many, spreading, clustered in a ring; filaments white; anthers pale yellow. *Style* 0; stigma large, discoid, obscurely crenate, $\frac{1}{2}$ in. across.

Fig. 1, petals; 2 and 3, stamens; 4, stigma; 5, ovary in vertical section:—*all enlarged*.



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Tab. 8703.

MESEMBRYANTHEMUM PILANSII.

South Africa.

FICOIDEAE. Tribe MESEMBRYEAE.

MESEMBRYANTHEMUM, *Linn.*; *Benth. et Hook. f. Gen. Plant.* vol. i. p. 854,

Mesembryanthemum Pilanii, *Kensit in De Wild. Pl. Nov. Hort. Then.* vol. ii. p. 8, t. 57; species *M. lacero*, Haw., affinis sed petalis longe spathulatis in genere insignis.

Suffrutex ramosus 45–60 m. altus, omnino glaber, ramis ancipitibus rubescentibus. *Folia* 3–3·5 cm. longa, 6–9 mm. lata, 8–10 mm. crassa, patula, incurva, acute triquetra, carina saepe eroso-dentata vel interdum integra, apice mucronato-acuta, glauco-viridia. *Flores* solitarii, terminales. *Pedicelli* 1–1·3 cm. longi. *Calyx* 5-lobus, glauco-virens; tubus late obconicus, circiter 1·3–1·5 cm. diametro; lobi inaequales, 1–1·5 cm. longi, foliiformes, tribus late membranaceo-marginatis. *Corolla* 4–4·5 cm. diametro; petala biformia, exteriora numerosa, 3-seriata, alia patula, alia erecto-incurva, 1·5 cm. longa, longe spathulata, unguibus filiformibus albis et laminis elliptico-lanceolatis obtusis 2·5–3 mm. latis pulchre purpureis; interiora numerosa, breviora, supra stamina arcte incurva, filiformia, alba. *Stamina* numerosa, supra ovarium incurva, alba. *Ovarium* latum, depressum, apice concavum, 10-loculare; stigmata 10, minuta, conniventia. —N. E. BROWN.

The very distinct and somewhat peculiar *Mesembryanthemum* here figured was first met with in January, 1907, at Moutons Vley, near Piquetberg, Cape Colony, at an elevation of about 2,000 feet above sea-level. It has since been introduced to European collections by its discoverer, Mr. N. S. Pillans. The species has not yet flowered at Kew, and the material from which our plate has been prepared was obtained from a plant presented by Mr. Pillans to the Cambridge Botanic Garden in 1913 which flowered there for the first time in June, 1914. Mr. R. I. Lynch, to whom we are indebted for this material, informs us that the conditions suitable for other members of the genus meet the requirements of *M. Pilansii*. The nearest ally of *M. Pillansii* is *M. lacero*, Haw., which it much resembles in foliage, but the very remarkable spathulate petals at once distinguish our

MARCH, 1917

plant not only from *M. lacerum*, but from every other known member of the genus. The stamens and the minute stigmas are completely concealed within the dome formed by the closely contiguous incurved filiform inner petals.

DESCRIPTION.—*Undershrub*, $1\frac{1}{2}$ –2 ft. high, much branched, glabrous in all its parts; branches forked, reddish. *Leaves* glaucous-green, sharply triquetrous, $1\frac{1}{4}$ – $1\frac{1}{2}$ in. long, $\frac{1}{4}$ – $\frac{1}{2}$ in. wide, and $\frac{1}{3}$ – $\frac{2}{5}$ in. thick, spreading, then slightly incurved, the keel often erosely toothed, occasionally entire, the tip acute and slightly mucronate. *Flowers* solitary, terminal, pedicels $\frac{1}{3}$ – $\frac{1}{2}$ in. long. *Calyx* 5-lobed, greenish glaucous; tube wide obconic, from $\frac{1}{2}$ – $\frac{2}{3}$ across lobes unequal $\frac{2}{5}$ – $\frac{3}{5}$ in. long, resembling the leaves, three with, the others without broad membranous margins. *Corolla* $1\frac{1}{2}$ – $1\frac{3}{4}$ in. across; petals of two kind; the outer numerous, 3-seriate, some spreading, others erect or incurved, about $\frac{2}{3}$ long, long-spathulate with a white filiform claw and a purple elliptic-lanceolate blunt blade $\frac{1}{10}$ – $\frac{1}{8}$ in. wide; the inner also numerous but shorter, white, filiform, sharply incurved over the stamens. *Stamens* numerous, white, incurved over the ovary. *Ovary* broad and depressed with a concave apex, 10-locular; stigmas 10, minute, connivent.

TAB. 8703.—Fig. 1, section of a flower; 2, an outer petal; 3, inner petals and stamens; 4, an inner petal:—*all enlarged*.



MESEMBRYANTHEMUM POMERIDIANUM. GREAT
YELLOW-FLOWERED FIG-MARIGOLD.

Class and Order.

ICOSANDRIA PENTAGYNIA.

Generic Character.

Cal. 5-fidus. *Petala* numerosa linearia, *Capf.* carnofa, infera, polysperma.

Specific Character and Synonyms.

MESEMBRYANTHEMUM *pomeridianum*; foliis planiusculis lato-lanceolatis lævibus subciliatis distinctis, caule pedunculis germinibusque hirtis. *Sp. Pl.* 698. *Jacquin Icon. rar.* v. 2. 489. *Ait. Hort. Kew* 2. 194. *Martin Miller's Dict.* n. 66. *Linn. Dec.* 1. tab. 13.

MESEMBRYANTHEMUM *glabrum*; *And.* 57. an hujus varietas nana ?

This is certainly the *MESEMBRYANTHEMUM pomeridianum* of LINNÆUS, both accurately described and figured by the younger LINNÆUS. The *MESEMBRYANTHEMUM helianthoides* of the Kew Catalogue we should be tempted to put down as a mere variety of this; but observing that both sorts were introduced by Mr. MASSON from the Cape the same year, we are unwilling to suppose that, in so accurate a work, two species should be made of one when both could be compared together.

It has usually twelve stigmas and as many cells in the capsule; the peduncles and base of the calyx are always hairy; the segments of the calyx irregular, three of them flat and usually longer than the petals, and two rounded in the middle with membranaceous appendages at the base.

It is a tender annual; but if raised in a hot bed in April or May, the young plants may be set out in the open border by the middle of June, where they will thrive much better than when confined in a pot. They produce a great number of flowers, which when expanded, as they always are in the afternoon if the sun shine, are very fleshy; and as they feed freely, they are easily propagated.

Our figure was taken in the Botanic Garden at Brompton early in July last.—Introduced to the Royal Garden at Kew, by Mr. MASSON, 1774. *Ait. Kew.*

N^o 396



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MESEMBRYANTHEMUM SPECTABILE. SHEWY
FIG-MARIGOLD.

Class and Order.

ICOSANDRIA PENTAGYNIA.

Generic Character.

Calyx. 5-fidus. *Petala* numerosa, linearia, *Capsula* carnosa, infera, polysperma.

Specific Character.

MESEMBRYANTHEMUM *spectabile*, foliis perfoliatis, longissimis, glaucis, punctatis, integerrimis, triquetris, apice fimbriatis, caule lignoso adscendente. *Haworth. Mesemb. p. 385*

MR. HAWORTH, in his observations on the genus *Mesembryanthemum*, gives to this species the name of *spectabile*, its blossoms being uncommonly showy.

Of this tribe there are species whose flowers are superior in and brilliancy of colour to the present, whose leaves are more remarkable for the singularity of their form, yet in point of ornament, this, perhaps, is of all other the most desirable, as it continues to produce its fine large purple flowers during the whole of the summer, is of ready growth, and raised without difficulty from cuttings.

It has been introduced to this country within these few years, most probably from the Cape, by Mr. MASSON.

To Mr. HAWORTH's description of the foliage we have only, to add, that the leaves sometimes throw out internally a tooth near their extremities, as is shown in our figure.



TAB. 6299.

MESEMBRYANTHEMUM SUTHERLANDII.

Native of Natal.

Nat. Ord. FICOIDEÆ:—Tribe MESEMBRYEÆ.

Genus MESEMBRYANTHEMIUM, *Linn. (Benth. et Hook. f. Gen. Plant. vol. i. p. 53.)*

MESEMBRYANTHEMUM *Sutherlandii*; herbaceum, perenne, ramosum, robustum, ramis annuis adscendentibus cylindraceis hispidulis, foliis oppositis patenti-recurvis basi subconnatis, elongato lingulatis minute papulosis supra medium subdilatatis acutis superne scaberulis marginibus subrecurvis ciliolatis crasse carnosius supra paulo-concavis subtus costam rotundatam versus tumidis, scapo 5-floro 1–2-pollicari robusto hispidulo, flore 2–2½ poll. diamet. calyce tereti tubo turbinato, sepalis inæqualibus subcylindraceis patenti-recurvis obtusis scaberulis 2 brevioribus membranaceo-marginatis, petalis roseo-pupureis anguste linearibus obtusis, staminibus flavis multi-seriatis exterioribus anantheris, stigmatibus 5 ovato-lanceolatis acuminatis grosse papillosis seta terminatis.

It is not without hesitation that I propose a new South African species of the immense genus *Mesembryanthemum*, of which some 290 species are already contained in Harvey and Sunders' 'Flora Capensis.' I have, however, searched in vain amongst those described in that work for any which accords with this, which moreover comes from a district beyond the range of the species hitherto discovered. Of the sixty-five sections under which the S. African species are classified, there is none with which it quite agrees, though it is probably referable to one of those belonging to the great group of "Papulosæ," the surfaces of whose leaves and branches are covered with minute glistening cellular papillæ. It may, perhaps, be safely referred to a reformed section, "Platyphylla," of Haworth, from which it differs in the root being perennial instead of annual or biennial.

M. Sutherlandii was sent to the Royal Gardens by Dr. Sutherland, Surveyor-General of the colony of Natal, in 1870, and has flowered annually in the summer months since 1872.

DESCR. Minutely papulose and clothed (except the broad tumid middle part of the under surface of the leaves) with short rigid hairs. Root perennial. Stem branching from

JUNE 1ST, 1877.

the base; branches annual, diffuse or suberect, cylindric, three to six inches high, green. *Leaves* opposite, decussate, two to three inches long, spreading and recurved, slightly connate by their sessile bases, oblanceolate or linear-oblong and dilated beyond the middle, acute, deep green, upper surface slightly convex, channelled towards the base, under tumid and rounded towards the keel; margins acute, slightly recurved. *Peduncles* subterminal, three to four inches long, stout, terete, green, gradually dilated into the almost hemispheric bristly terete calyx-tube. *Calyx-lobes* 5, unequal, spreading and recurved, cylindric, obtuse, papillose and scabrid, green, two smaller than the others and having broad membranous margins. *Corolla* two to two and a half inches in diameter. *Petals* very numerous, pale bright-purple, linear, very narrow, obtuse. *Stamens* very numerous in many series, the outer without anthers. *Carpels* 5, globose; stigmas large, ovoid, acuminate, terminating in hair-like points, densely clothed with large papillæ on the inner surface and margins.

J. D. H.

Fig. 1, Apex of peduncle, carpels, and stigma:—*enlarged*.



M. S. G. & N. P. G. G.

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TAB. 8595 A.

MESEMBRYANTHEMUM THECATUM.

South Africa.

FICOIDAE. Tribe MESEMBRYEAE.

MESEMBRYANTHEMUM, *Linn.; Benth. et Hook. f. Gen. Plant.* vol. i. p. 858.

MESEMBRYANTHEMUM thecatum, *N. E. Br.*; species nova *M. fraterno*, *N. E. Br.*, affinis, sed plantulis coeruleo-viridibus punctis minoribus et minus conspicuis floribus roseo-purpureis et staminibus paucioribus differt.

Herba parva, acaulis, succulenta, caespitosa, glabra. *Folia* in corpuscula obconica, apice leviter convexo-truncato, 7–10 mm. diametro fusa, coeruloviridis, punctis sordide viridibus conspersa, fissura centrali 3 mm. longa, pedunculos et ovaria includentia. *Calyx* tubulosus, apice 4-lobus, membranaceus, albidus; lobi ovati vel obovati, obtusi. *Corolla* gamopetala, 1·2–1·5 cm. dimittens, roseo-purpurea, luteo-oculata; petala difformis, exteriora 12–16, 2-seriate, 6–8 mm. longa, 1·5–2 mm. lata, cuneato-lineariter, acuminata, lutea interdum apice roseo-purpurea. *Stamina* 8, 2-seriata, medium tubum corollae attingentia, lutea. *Stylus* 8 m. 1·5–2 mm. longus, staminibus brevior, apice 4-lobus, viridis.—*N. E. BROWN.*

The pleasing little tiesembryant heum here for the first time described belongs to a group of species in that sprg e oenus characterised by each branch or divisio of Sneplantr bearing at any one time bu oneo pair of tama which are united for the whole or for part of their extent into one mass, technically termed a “corpusculum.” When a fresh pair of leaves, united in aniew corpusculum, is being formed, the pair of the previous growth gradually shrivel to a papery consistence through which the new growth bursts. In the case of *M. thecaum*, depicted in the upper half of our plate, the two leaves of each succeeding growth are united throughout and completely envelop the peduncle and ovary, leaving at their apex a mere fissure from which the actual flower protrudes. The species is one of the novelties discovered by Professor Pearson, Director of the National Botanic Garden of South Africa at Kirstenbosch near Cape Town, in the course of his very fruitful journey to the Orange River undertaken in 1910-11 under the auspices and with the

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assistance of the Percy Sladen Trust. It was met with growing on dry ridges south of Bakhuis in the Van Rhynsdorp Division of Cape Colony, and the plant from which our figure has been prepared formed part of a very valuable collection of succulents collected by Professor Pearson and his fellow-traveller on the expedition, Mr. N. S. Pillans, which was presented to Kew in 1911. It has thriven well and flowered freely under the conditions suitable for Mesembryanthemums generally. Its flowers open in the morning and close at night, and are devoid of scent; each flower lasts from four to six days.

DESCRIPTION.—*Herb*, small, stemless, succulent, tufted, glabrous. *Leaves* consolidated in obconic bodies, somewhat convex-truncate at the tip, about $\frac{1}{3}$ in. thick, bluish-green with dull green markings, central chink $\frac{1}{8}$ in. long, concealing the peduncle and the ovary. *Calyx* tubular, 4-lobed at the tip, membranous, whitish; lobes ovate or obovate obtuse. *Corolla* gamopetalous, $\frac{1}{2}$ – $\frac{2}{3}$ in. across, rose-purple with a yellow eye; petals of two types, the outer 12–16 are 2-seriate, $\frac{1}{4}$ – $\frac{1}{3}$ in. long, $\frac{1}{10}$ in. or less in width, linear-cuneate with blunt or denticulate tips, rose-purple throughout, the inner 12–16 are very short, linear, acuminate, yellow, sometimes rose-purple at the tips. *Stamens* 8, 2-seriate, reaching the middle of the corolla-tube, yellow. *Style* $\frac{1}{2}$ in. long or less, shorter than stamens, 4-lobed at the tip, green.

Fig. 1. vertical section through a flower and the upper part of a plant; 2, outer and inner petals; 3, style and stigmas:—*all enlarged*.

TAB. 8595 B.

MESEMBRYANTHEMUM STYLOSUM.

South Africa.

FICOIDAE. Tribe MESEMBRYEAE.

MESSEMBRYANTHEMUM, *Linn.; Benth. et Hook. f. Gen. Plant.* vol. i. p. 858.

Mesembryanthemum stylosum, *N. E. Br.*; species nova *M. bilobo*, Marl., affinis sed major, lobis quam corpuscula longioribus et stylo staminibus longiori differt.

Herba parva, acaulis, succulenta, laxae caespitosa glabra. *Folia* in corpuscula oblonga, apice 2-loba connata, 2·5–5 cm. alta, 1·2–1·5 cm. lata, 0·8–2 cm. crassa, glauco-viridia, epunctata, lobi ad 2 cm. longi, obtusi, facie interiore plani, dorso rotundati vel obscure carinati, compressi, saepe obliqui; ovarium inclusum. *Calyx* tubulosus, apice 4–6-lobus, inclusus vel ex parte exsertus; lobi 3–6 mm. longi, 1·5–2·5 mm. lati, oblongi, obtusi vel subacuti, submembranacei vel virides. *Corolla* gamopetala 2–3·5 cm. diamantiens, lutea; petala 45–56, 3–4-seriata, 1–1·8 cm. longa, 1–1·5 mm. lata, linearis, obtusa. *Stamina* numerosa, breviter exserta, pallide lutea. *Stylus* apice 5–6-lobus; lobi subulati, rubro-aurantiaci, ultra stamina longe exserti.—N. E. BROWN.

The interesting *Mesembryanthemum* which occupies the lower half of our plate is another of the fruits of the Percy Sladen Memorial Expedition to the Orange River, led in 1910–11 by Professor Pearson of Cape Town. Like its companion this species, *M. stylosum*, is a hitherto uncharacterised one, belonging to the same natural group, though in this instance the welding of the two leaves forming each corpusculum is much less complete and the resultant bodies are deeply 2-lobed at the apex. *M. stylosum* was collected on the plains between Chubiessis and Stinkfontein in Little Namaqualand, and the plant from which our illustration has been prepared formed part of the same munificent accession to the succulent collection at Kew for which the institution is indebted to the Percy Sladen Trust and to the travellers who, thanks to their assistance, were enabled to investigate so thoroughly the vegetation of a considerable portion of western Cape Colony. The flowers in *M. stylosum* are bright yellow; they open in the day time and only in bright sunshine. They last for five to six days and are

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without odour. The species thrives well under the conditions suitable for fleshy-leaved Mesembryanthemums, of which there is at Kew a large collection. They are most successfully cultivated in a sunny greenhouse or frame, except during summer, when they are placed in the open air. They enjoy a fair allowance of water at the root whilst in growth, but require little or none during winter when they are at rest.

DESCRIPTION.—*Herb*, small, stemless, succulent, loosely tufted, glabrous. *Leaves* fused below in oblong bodies with 2-lobed apices, 1–2 in. long, $\frac{1}{2}$ – $\frac{2}{3}$ in. wide, $\frac{1}{3}$ – $\frac{3}{4}$ in. thick, glaucous-green, unblotched; lobes up to $\frac{3}{4}$ in. long, obtuse, flat on the ventral, rounded or indistinctly keeled on the dorsal face, compressed, often oblique; ovary enveloped by the base of the mass. *Calyx* tubular, 4–6-lobed at the tip, included or partly exserted; lobes $\frac{1}{8}$ – $\frac{1}{4}$ in. long up to $\frac{1}{10}$ in. wide, oblong, obtuse or subacute, somewhat membranous or green. *Corolla* gamopetalous, $\frac{3}{4}$ – $1\frac{1}{3}$ in. across, yellow; petals 45–56, 3–4-seriate, $\frac{1}{3}$ – $\frac{3}{4}$ in. long, $\frac{1}{16}$ in. wide, linear, obtuse. *Stamens* many, shortly exserted, pale yellow. *Style* 5–6-lobed at the tip; lobes subulate, reddish-orange, exserted far beyond the stamens.

Fig. 1, a stamen; 2. style and stigma:—*all enlarged*.

A



B



TAB. 8674A.

MESEMBRYANTHEMUM TRANSVAALENSE.

South Africa.

FICOIDEAE. Tribe MESSEMBRYEAE.

MESEMBRYANTHEMUM, *Lin.; Benth. et Hook. f. Gen. Plant.* vol. . p. 853.

MESEMBRYANTHEMUM (§ Aloidea) **transvaalense**, *Rolfe*; species nova *M. albi-punctato*, Haw., affinis, sed foliis patentibus vel subreflexi, floribus majoribus, petalis rubro-lineatis et stylis clavatis differt.

Herba parva, acaulis. Folia 8–11, patentia vel subreflexa, lineari-oblonga, subacuta, integra, crassa, nitida, viridia, crebre et minute verruculosa, 2·5–4 cm. longa, 0·5–0·6 cm. lata, 0·4–0·6 cm. crassa, supra planiuscula vel subconcava, subtus convexa, vix carinata, apice incurvula, triquet-ro-compressa. *Flores* subsessiles, expansi 2·5–3 cm. diametro. *Calyx* late campanulatus; lobi late deltoideo-ovati, acuti, 0·6–0·7 cm. longi, minute verruculosi, margine membranacei. *Petala* numerosissima, patentia vel subreflexa, circiter 1 cm. longa, lutea, medio rubro-lineata. *Stamina* numerosa, erecta; filamenta albida; antherae flavidae. *Styli* 10, erecti, apice patentés, subelavati.—R. A. ROLFE.

For the introduction to our succulent collections of the *Mesembryanthemum* here described horticulture is indebted to the officers of the Department of Agriculture of the Transvaal, by whom it was presented to Kew in 1910. It is a native of the Transvaal, where it was originally obtained by Mr. J. Burt Davy in the Smitskraal-Boshof district. In its native habitat it is met with growing on a brown loam; under cultivation at Kew it has thriven well under the conditions suitable for other South African species. It flowered for the first time in June, 1915, and proved then to be a hitherto uncharacterized species. A member of the *Aloidea* section of its genus, *M. transvaalense* calls to mind *M. vittatum*, N. E. Br., and *M. rubro-lineatum*, N. E. Br., two species in which the petals are similarly marked with a central red line. In all other characters, however, it is more nearly allied to *M. albipunctatum*, Haw., a species introduced many years ago from some locality in South Africa which has not been definitely recorded, though it is known that the plant was found not far

AUGUST, 1916.

from the coast. From *M. albipunctatum*, however, the species now figured is readily distinguished by its more spreading leaves, its larger, differently coloured flowers and its more distinctly clavate styles.

DESCRIPTION.—*Herb*, small and stemless. *Leaves* 8–11, spreading or somewhat reflexed, linear-oblong, sub-acute, entire, thick, shining green, closely and finely warted, $1-1\frac{3}{4}$ in. long, $\frac{1}{5}-\frac{1}{4}$ in. wide, $\frac{1}{6}-\frac{1}{5}$ in. thick, flattish or somewhat concave above, convex, but hardly keeled beneath, slightly incurved at the tip, compressed triangular. *Flowers* nearly sessile, $1-1\frac{1}{4}$ in. across. *Calyx* wide campanulate; lobes wide deltoid-ovate, acute, about $\frac{1}{4}$ in. long, finely warted, margin membranous. *Petals* very many, spreading or somewhat reflexed, about $\frac{1}{3}$ in. long, yellow, with a red central line. *Stamens* numerous, erect; filaments whitish; anthers yellowish. *Styles* 10, erect, spreading and somewhat clavate at the tip.

Fig. 1, apex of leaf; 2 and 3, stamens; 4, apex of ovary, with styles:—*all enlarged*.

TAB. 8674B.

MESEMBRYANTHEMUM TUBERCULOSUM.

South Africa.

FICOIDEAE. Tribe MESEMBRYEAE.

MESEMBRYANTHEMUM, *Linn.; Benth. et Hook. f. Gen. Plant.* vol. i. p. 853.

Mesembryanthemum (§ Ringentia) **tuberulosum**, *Rolfe*; species nova a *M. tigrino*, Haw., foliorum facie supero tuberculis obtusis albidulis instructo marginibus sparse spinosis et stylis basi connatis apice valde recurvis difert.

Herba parva, acaulis. Folia 6–8, subpatentia, deltoideo-ovata, subobtusata, viridia, 2–2.5 cm. longa, 1.5–2 cm. lata, 1 cm. crassa, supra subconvexa, tuberculis obtusis albidulis instructa, subtus convexa, minute albidopunctata, apice triqueto-compressa. *Flores* subsessiles, expansi circiter 4 cm. diametro. *Calyx* campanulatus; lobi oblongi, 1 cm. longi. *Petala* numerosissima, patentia, lutea, 1.3–1.5 cm. longa. *Styli* 5, basi connati, apice ad recurvi, papillosoi.—R. A. ROLFE.

The attractive *Mesembryanthemum* figured on the lower portion of our plate is one for whose introduction horticulture is indebted to Mr. N. S. Pillans of Cape Town, by whom it was communicated some ten years ago, along with several other species, to Mr. G. Elisha, Canonbury Park Road North, London. The example of the species now described, which was labelled as being from Namaqualand, arrived in a condition which rendered cultivation impossible. Two seed capsules, however, were still attached to the plant; these were removed and kept until the following spring, when the seeds were separated and sown in a small pan half filled with soil and lightly covered with a layer of fine earth and sand. The pan, covered with a sheet of glass, was placed in a sunny spot in a greenhouse, and by the end of the summer five small but vigorous plants were raised. The appearance of the plants called to mind *M. tigrinum*, Haw., but from the outset it was realised that they could hardly be that species, the leaves being of a much darker green. The appearance on the later-formed leaves of the small raised points, which became more pronounced during the following season, made it certain that this Namaqua

AUGUST, 1918.

plant was not *M. tigrinum*, but no suggestion as to its identity could be offered. With a view to its ultimate determination one of the five plants was presented to the Kew collection, where it has thriven well under the conditions suitable for other members of the genus. This plant flowered for the first time in October, 1913, and forms the subject of our illustration. It proves to be a hitherto undescribed member of the *Ringentia* section, nearest, as was originally surmised, to *M. tigrinum*. The leaves, however, besides being of a darker green, are less strongly marginally toothed, while the upper surface, instead of being smooth, is tuberculate, each tubercle having a white central spot. The flowers in *M. tuberosum* are larger, and the styles are united below in a column, their upper free portion being strongly recurved, whereas in *M. tigrinum* the styles are free and nearly erect throughout.

DESCRIPTION.—*Herb*, small and stemless. *Leaves* 6–8, somewhat spreading, deltoid-ovate, rather blunt, green, $\frac{3}{4}$ –1 in. long, $\frac{2}{3}$ – $\frac{3}{4}$ in. wide, over $\frac{1}{3}$ in. thick, somewhat convex above and beset with blunt, whitish tubercles, convex beneath and finely white-punctate, tip compressed-triangular. *Flowers* nearly sessile, $1\frac{1}{2}$ in. across. *Calyx* campanulate; lobes oblong, over $\frac{1}{3}$ in. long. *Petals* very many, spreading, yellow, $\frac{1}{2}$ – $\frac{2}{3}$ in. long. *Styles* 5, connate at the base, much recurved above, papillose.

Figs. 5 and 6, anthers; 7, style and stigma:—all enlarged.



(2144)

MESEMBRYANTHEMUM TRICOLOR. PURPLE-
EYED FIG MARYGOLD.

Class and Order.

ICOSANDRIA PENTAGYNIA.

Generic Character.

Cal. 5-fidus. *Petala* numerosa, linearia, basi cohærentia, *Caps.* carnosa, infera, polysperma.

Specific Character and synonyms.

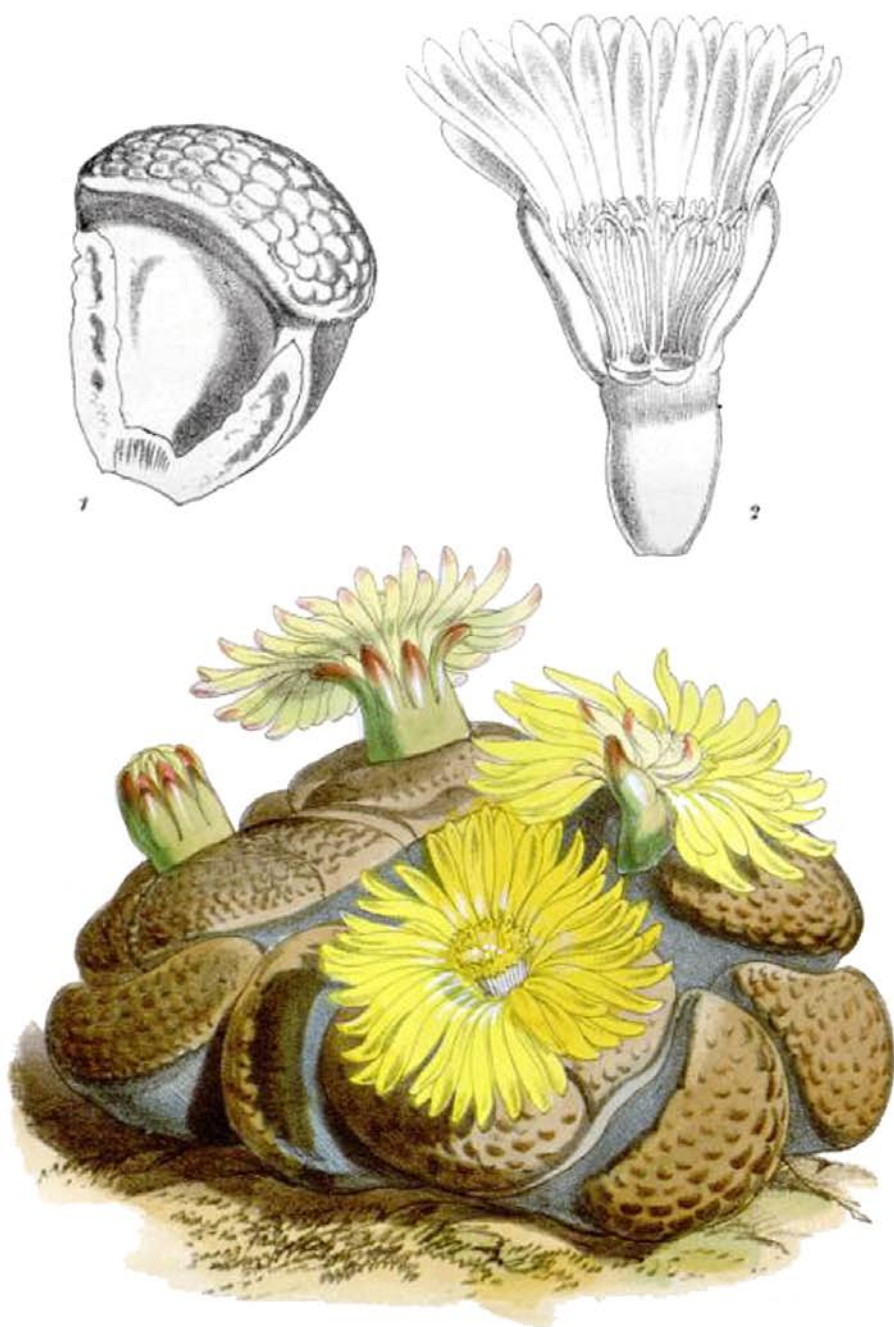
MESEMBRYANTHEMUM *tricolor*; subcaulescens, foliis punctatis lineari-spathulatis connatis subtus convexis supra sulco exaratis. *Willd. Enum.* 530.

MESEMBRYANTHEMUM *tricolor*; foliis amplexicaulibus distinctis punctatis lineari-spathulatis subtus convexis superne sulco exaratis, caule brevissimo herbaceo. *Willd. Hort. Berol. v. 1. p. 22. t. 22.*

OBS. Species a *tricoloro* Haworthii omnino distincta.

A pretty little annual species altogether different from the *tricolorum* of HAWORTH and AITON. It is easily propagated by seeds, which it produces freely; these should be sown in the spring on a hot bed, and treated as the ice plant and other annual species,

The first account we have of this plant is in WILLDENOW'S Hortus Berolinensis. It is supposed to be a native of the Cape of Good Hope. Communicated by Mr. ANDERSON from the Chelsea Garden, who received the seeds from Mr. OTTO, of the Royal Garden in Berlin. Mr. ANDERSON informs us that there are two varieties of this species cultivated at Kew, one With paler and the other with deeper coloured flowers.



TAB. 6077.

MESEMBRYANTHEMUM TRUNCATELLUM.

Native of Soouth Africa.

Nat. Ord. FICOIDEÆ.—Tribe MESEMBRYEÆ.

Genus MESEMBRYANTHEMUM, *Linn.*; (*Benth. & Hook. f. Gen. Plant.*, vol. i. p. 853).

MESEMBRYANTHEMUM *truncatellum*; obconicum, 1–3 poll. diametro, acaule, glaberrimum, glaucum, crassum, pallide viride, foliis ad 4 decussatim oppositis latissime cuneatis basi connatis appressis apicibus dilatatis, latissime truncatis, vertice lunatis convexis pallide bruneis depresso-tuberculatis colore saturatione irroratis, basi vestigiis membranaceis fugaceis foliorum vetustorum vaginatis, floribus majusculis 1½ poll. diametro solitariis sessilibus, ovario inter folia 2 summa compresso, calyce 5-6-fido segmentis obtusis, petalis 2-serialibus numerosissimis anguste linearibus stramineis, staminibus perplurimis segmentis calycinis æquilongis, stylis ad 5 gracilibus, apicibus incurvis.

MESEMBRYANTHEMUM *truncatellum*, *Haworth Miscell. Nat.*, p. 22; *Ait. Hort. Kew, Ed. 2*, vol. iii. p. 213; *Haw. Synops. Plant. Succ.*, 203; *DC. Prodr.*, vol. iii. p. 417.; *Harv. & Sond. Fl. Cap.*, vol. ii. p. 392.

Though differing in some respects from the published description of *Mes. truncatellum*, I have little hesitation in referring the vegetable oddity here figured to that plant. Thus Harvey, on what authority is not stated, describes it as only half an inch in size, whereas Haworth (the author of the species) calls it the “great dotted Dumplin,” which implies that it is the largest of its allies, of which the smallest, *M. minutum*, is fully half an inch in size. Again, Haworth, in his original description (*Misc. Nat.*), describes the ovary as never extruded beyond the surface of the plant, as in our specimen; but in his Synopsis he describes it as exserted, and in this he is followed by De Candolle and Harvey. Lastly, the calyx is said to be 5-fid in the original description, and in De Candolle’s *Prodromus*, and Harvey’s *Flora*; but 4-fid in the *Hortus Kewensis*: in our plant it is 6-fid.

JANUARY 1ST, 1874.

M. truncatellum was introduced into Kew in 1795, by F. Masson, one of the travellers attached to the establishment, and is described as flowering in November; our plant was sent by Principal MacOwan, of Gill College, Somerset East, and flowered in October 1873; it is a very rare species, was unknown to the Prince Salm Dyck, and is hence not included in his magnificent work; it has never before been figured.

DESCR. Plant forming tufts of pale glaucous green, obconic, truncate, translucent fleshy masses, one to three inches in diameter, with a flat or convex rather tubercled brown surface; each branch on plant, consisting of four leaves in opposite pairs, placed cross-wise. *Leaves* very fleshy, broadly cuneate, connate to above the middle; back convex; face convex; crown lunate, brown, mottled, convex; the first formed fleshy leaves, after developing another pair between them, shrink into a mere membranous pellicle that sheaths the base of the younger pair. *Flower* solitary, sessile, one and a half inches in diameter. *Calyx-tube* sunk and tightly-wedged between the two uppermost leaves; limb 5–6-cleft, lobes obtuse, tinged purple. *Petals* in two series, very numerous, straw-coloured. *Stamens* very numerous, anthers yellow. *Styles* 5, slender, tips uncurved.—*J. D. H.*

Fig. 1, Leaf; 2, flower with two sepals, and petals of same side removed:—*both magnified.*

N^o 326



Pub. by W. Curtis Sc^t Geo. Crescent Feb. 1. 1796.

MESMBRYANTHEMUM VIRIDIFLORUM.
GREEN-FLOWERED FIG-MARIGOLD.

Class and Order.

ICOSANDRIA PENTAGYNIA.

Generic Character.

Cal. 5-fidus. *Petala* numerosa, linearia, *Caps.* carnosa, infera, polysperma.

Specific Character and synonyms.

MESEMBRYANTHEMUM *viridiflorum* foliis femicylindraceis papuloso-pilosis, calycibus quinquefidis hirsutis. *Ait. Kew.* v. 2. p. 196. *Haworth Mesemb.* p. 199. *Syst. Nat, ed. Gmel.* p. 848.

Of the seventy species of *Mesembryanthemum* described in the *Hortus Kewensis*, this is the only one with green flowers.

Mr. MASSON introduced it from the Cape in 1774.

The flowers are not only remarkable for their colour, but extreme fineness of the florets; they begin to come forth in July, and continue to be produced till the end of September; the plant is easily increased by cuttings, is of ready growth, and blows freely.

In Mr. HAWORTH'S *Observations on the Genus Mesembryanthemum*, lately published, there is a very ample description of it to which we refer such of our readers as wish for more minute information respecting it.



M. G. & J. H. P. & L. & L.

Vincent Brooks Day & Son Ltd. & L.

L. Rees & C. London.

TAB. 8248.

MICROLOMA TENUIFOLIUM.

South Africa.

ASCLEPIADACEÆ.

MICROLOMA, R. Br.; *Benth. et Hook. f. Gen. Plant.* vol. ii. p. 747.

Microloma tenuifolium, K. Schum. in *Engl. & Prantl, Pflanzenfam.* vol. iv. pars ii. p. 222; N. E. Br. in *Dyer, Fl. Cap.* vol. iv. sect. i. p. 550; species ob lobos corollae cordato-orbiculares etiamque ob fasciculos pilorum deflexorum in faucem corollae dispositos insignis.

Herba caule volubile gracile glabro. *Folia* opposita, patentia vel deflexa, breviter petiolata, 2·5–7 cm. longa, 1–3 mm. lata, linearia, acuta, saepe marginibus revolutis, glabra. *Cymae* ad nodos sublaterales, 3–7-floræ. *Pedunculi* 4–6 mm. longi. *Pedicelli* 4–7 mm. longi, tenuiter adpresse puberuli. *Sepala* 5 mm. longa, lineari-lanceolata vel oblongo-lanceolata, acuta, tenuiter puberula vel subglabra. *Corolla* urceolata, subcarnosa, extra glabra, intra ad faucem fasciculis pilorum deflexorum 5 onusta, kermesina; tubus 5 mm. longus, pentagonus, inferne inflatus; lobi 2 mm. longi et lati, cordato-orbiculares, obtusissimi, imbricato-contorti. *Coronae* tuberculae parvae, ad medium corollae insertae. *Columnae staminum* ad medium 5 calcaratae. *Folliculi* solitarii, 5·5–7·5 cm. longi, 7–8 mm. crassi, fusiformes, longe acuminati, glabri. *Semina* 4 mm. longa, ovata, concavo-convexa, tuberculata, apice comosa.—*Microloma lineare*, B. Br. in *Mem. Wern. Soc.* vol. i. p. 53. *M. linearis* et *M. tenuiflora*, O. Kuntze in *Jahrb. Bot. Gart. Berl.* vol. iv. p. 268. *Periploca tenuifolia*, Linn. *Sp. Pl.* ed. i. p. 212. *Ceropegia tenuifolia*, Linn. *Mant.* ii. pp. 215, 316. *C. sinnata*, Poir. *Encycl. Meth. Suppl.* vol. ii. p. 178.—N. E. BBROWN.

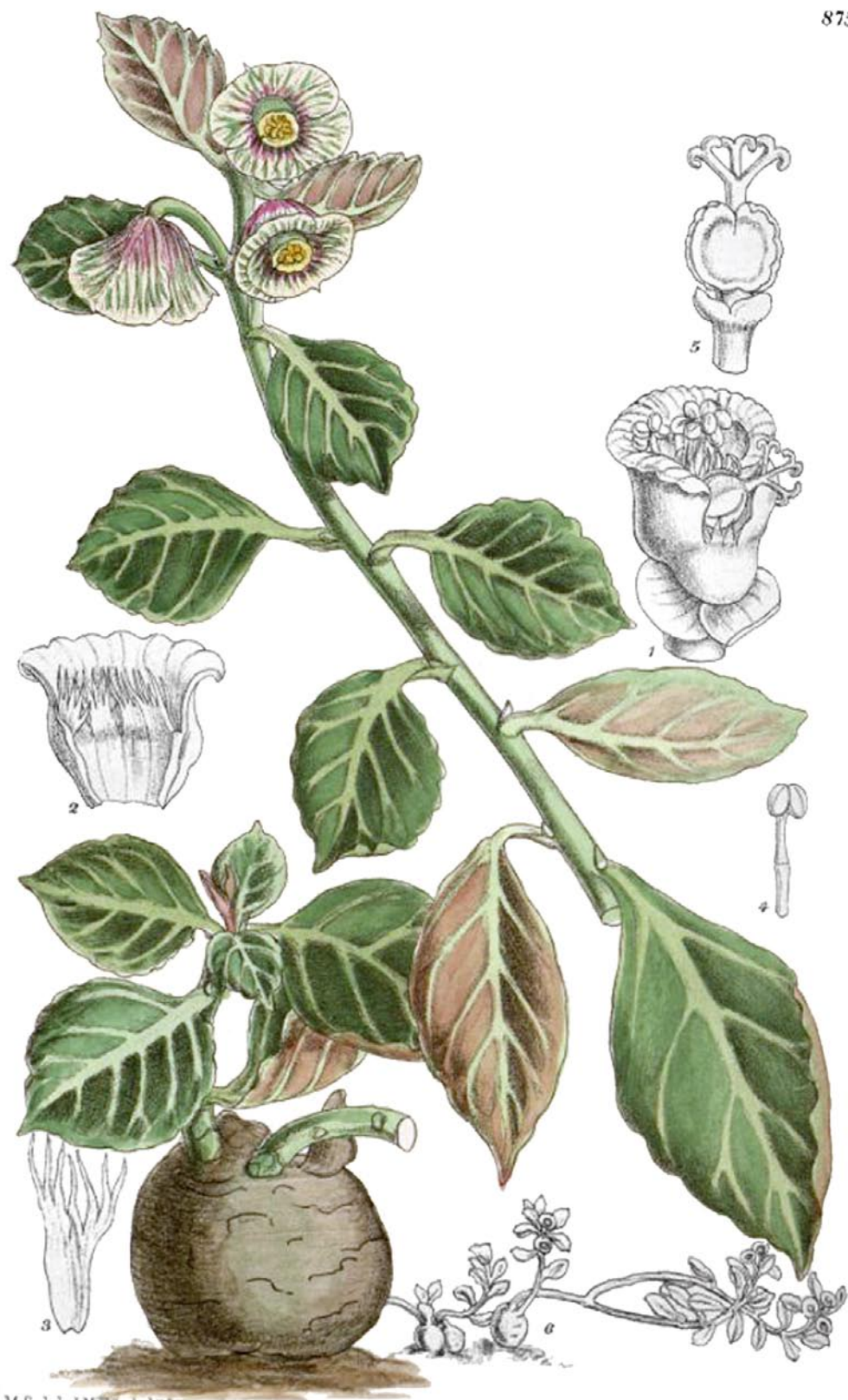
The genus *Microloma*, which is endemic in South Africa, includes ten species, most of which are confined to the Central and Western Regions of Cape Colony. The leading exceptions are *M. sagittatum*, R. Br., which is common in the Coast Region as well as in the Western, and the species now figured, which appears to be confined to the Coast Region but is widely distributed therein from the Van Rhynsdorp to the Port Elizabeth Divisions. Mr. Brown points out that the only species with which *M. tenuifolium* might be confused is *M. namaquense*, Bolus, a species restricted to the Western Region, in which the deflexed tufts of hairs are situated near the middle of the corolla-tube. The remaining species have the corolla-lobes more or less laterally compressed, longer than broad and often dorsally gibbous.

APRIL, 1909.

M. tenuifolium, the Coral Climber of South Africa, though it can be grown at Kew, never succeeds satisfactorily under the conditions that obtain here, and we are indebted to Mr. W. E. Gumbleton for the specimen now figured which was grown in his garden. In a note in the *Gardeners' Chronicle* for 1908, vol. xliii. p. 79, Mr. Gumbleton records the receipt of three healthy well-grown plants of this species from Port Elizabeth, where it is found growing wild at the base of low scrubby bushes round the branches of which it twines its slender, wire-like stems. The evidence to be obtained from herbarium specimens indicates that the wild plant flowers more profusely and bears more brightly coloured corollas than is the case in this country. These flowers, which are waxy and Hoya-like, are produced in axillary bunches. The plant requires greenhouse conditions.

DESCRIPTION.—*Herb*, stems twining, slender, glabrous. *Leaves* opposite, spreading or deflexed, short petioled, 1–2 $\frac{3}{4}$ in. long, 1–1 $\frac{1}{2}$ lin. wide, linear, acute, glabrous; margins often revolute. *Cymes* sublateral, 3–7-flowered peduncles $\frac{1}{6}$ – $\frac{1}{4}$ in. long; pedicels $\frac{1}{6}$ – $\frac{1}{3}$ in. long, faintly adpressed-puberulous. *Sepals* $\frac{1}{5}$ in long, linear or oblong-lanceolate, acute, faintly puberulous or nearly glabrous. *Corolla* urceolate, somewhat fleshy, crimson, glabrous outside, and with 5 tufts of deflexed hairs in the throat within; tube $\frac{1}{5}$ in. long, pentagonal, inflated below; lobes 1 lin., rounded-cordate, blunt, contorted-imbricate; corona-tubercles small, attached to middle of corolla-tube. *Staminal column* 5-spurred at the middle. *Follicles* solitary, 2 $\frac{1}{4}$ –3 in. long, about $\frac{1}{3}$ in. thick, fusiform, long acuminate, glabrous. *Seeds* $\frac{1}{6}$ in. long, ovate, tubercled, concave on one side, very convex on the other, with comose tips.

Fig. 1, a flower; 2, corolla, laid open; 3, staminal column; 4 and 5, anthers:—all enlarged.



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TAB. 8756.

MONADENIUM ERUBESCENS.

East Africa.

EUPHORBIACEAE. Tribe EUPHORBIAEE.

MONADENIUM, Pax in *Engl. Jahrb.* vol. xix.. 126 et in *Engl. & Prantl, Nat. Pflanzenfam.* vol. iii. pars 5, p. 457; N. E. Brown in *Dyer, F. Trop. Afr.* vol. vi. sect. 1, p. 450.

Monadeium (§ *Lortia*) **erubescens**, N. E. Brown in *Dyer, Fl. Trop. Afr.* vol. vi. sect. 1, p. 457, *pro parte*; species *M. majori*, N. E. Br., affinis sed tubere globoso, caule prostrato, cyathiis solitariis pedunculis simplicibus singulis in foliorum summorum axillis suffultis, involucri exteriori albido nec viridirubro et pubescentia omnium fere partium distinctum.

Herba perennis, tubere globoso 20–35 cm. diametro. Caules 1–2 e tubere ori, prostrati, succulenti, simplices vel inferne ramosi ad 5 mm. crassi, ad 15 cm. longi, minute puberuli. *Folia* petiolata, in planta culta variabilis, inter orbiculari-ellipticum et late ovato-lanceolatum fluctuantia, in planta spontanea plerumque late obovato-cuneata, apice breviter acuta vel cuspidato-acuminata, in planta culta 3–6 cm. longa, 2–3 cm. late, in planta spontanea minora, 2–3·5 cm. longa, 1·8–2 cm. lata, margine crispo-undulata, carnosula, supra viridia, infra rubescentia et viridi-venosa, minute et laxe puberula; petiolus brevis vel ad 1 cm. elongatus, dense puberulus. *Inflorescentia* axillaris, ad cyathium solitarium involucri bracteatum in pedunculo sub anthesi 1 cm. vix excedente maturitate longato nutans redacta; bracteae ad medium in cupulam late apertam campanuliformem 1·8 cm. diametro et paulo ultra 1 cm. altam connatae, minute apiculatae, carnosulae, albae pulchre viridi-venosae et fundum versus roseo-tinctae. *Cyathium* subsessile, globoso-tubulosum, puberulum, pallide viride, 6 mm. diametro, uno latere ad medium apertum, lobis albis fimbriatis 5 glandula annulari flavida crassa integra circumdatis et superatis. *Flores* ♂ nudi, bracteolis fimbriatis interixti. *Flores* ♀ e cyathii fissura exsertus, nutans; perianthium ad cupulam perbreve margine subundulatam vel lobulatam ovarii basin cingentem redactum; ovarium obtuse trigonum angulis haud alte bialatis, alis undulatis. *Capsula* matura ignota.—*Lortia erubescens*, Rendle in *Journ. Bot.* 1898, p. 30.—O. STAFF.

The genus *Monadenium* was established by Pax in 1914 on a species from East Africa with the floral structure characteristic of the genus *Euphorbia*, Linn., but easily distinguished from *Euphorbia* owing to the great development of the glandular apparatus of the cyathium. In this respect *Monadenium*, Pax, agrees with *Synadenium*, established by Boissier in 1862 on a Natal species, though in that genus the glandular ring is closed and not open

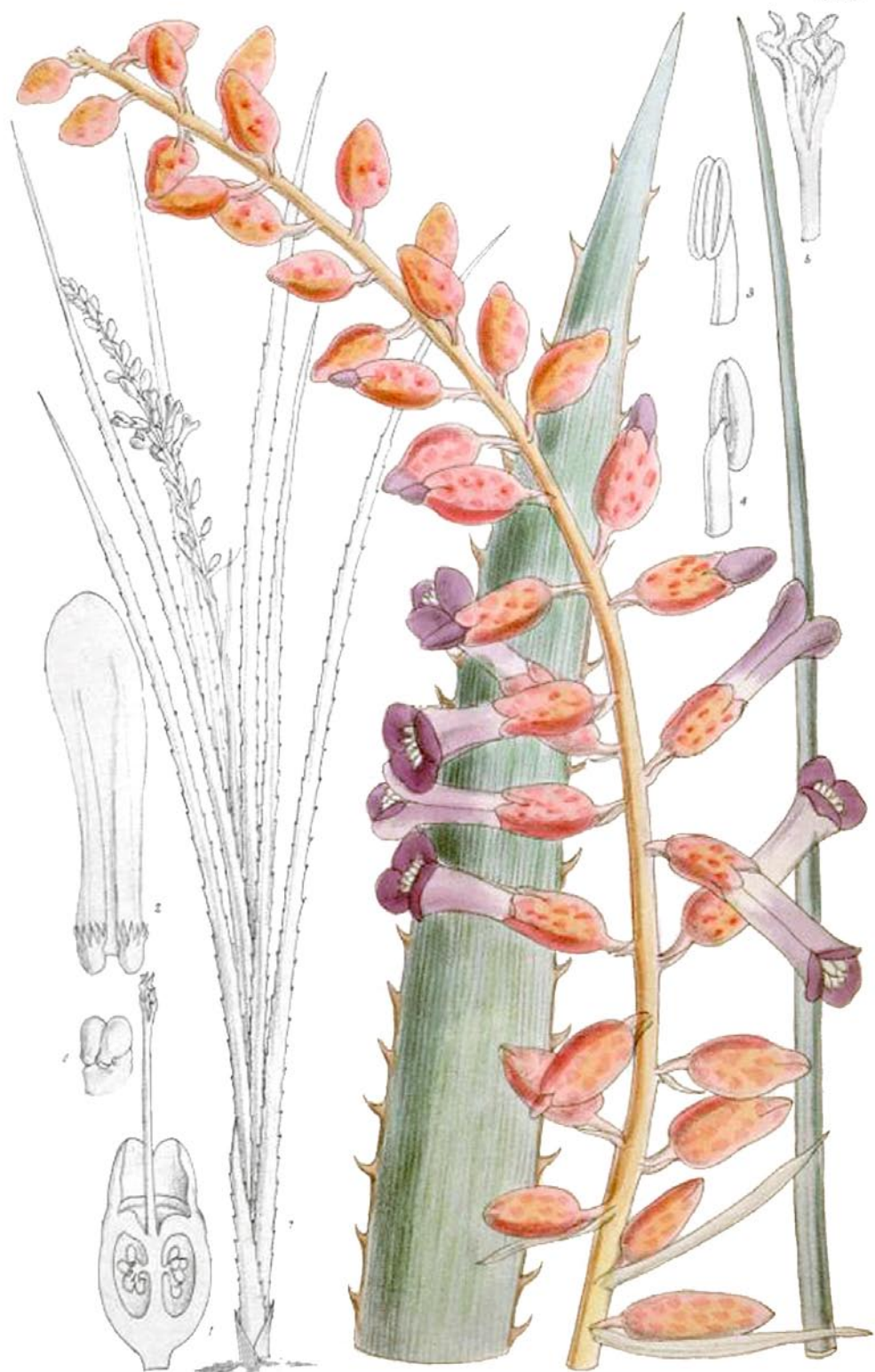
APRIL—JUNE, 1918.

on one side as in *Monadenium*. Two more species were added to *Monadenium* by Dr. Stapf in 1900, and since then the number of known *Monadenia* has increased to a score. Most of them appear to be extremely local; the area occupied by the genus extends from Abyssinia and Somaliland to Nyasaland, Ngamiland and Angola. Within the genus *Monadenium*, however, the species arrange themselves in two natural groups. In the first group, to which the original *M. coccineum*, Pax, belongs, the bract-involucres are distinctly dorsi-ventral, the two bracts being asymmetric, and so joined on one side as to form a single 2-keeled and usually 2-dentate or 2-cuspidate involucre. In the second group, to which the subject of our figure belongs, the bract-involucres are fairly regularly cupular or bell-shaped, the two bracts being nearly symmetric and usually equally united at the base or up to the middle. With these characters are associated in our plant that of having simple axillary inflorescences in place of branched inflorescences as in *M. coccineum*, and that of the presence of a perianth in the female flower whereas in *M. coccineum* no perianth was noticed by Pax. On this account the plant now described was made the basis of a distinct genus *Lortia* by Rendle in 1898, and the validity of this genus has since been accepted by Pax. An examination of the original type of *Monadenium* shows, however, that there the female flower has a perianth very like that of *Lortia*, and since the degree of branching in the types of the two genera merely represents extreme manifestations in opposite directions of one character, it has been found by Brown to be desirable to include *Lortia* in the older genus *Monadenium*. The difference in the involucre of the two types is, however, so marked that it is at least necessary to recognise in *Lortia* a distinct section, and it may with fuller knowledge be advisable to restore it to the rank of a genus. The type of this section, *M. (Lortia) erubescens*, was discovered by Mrs. Lort Phillips on the Wagga Mountains in Somaliland in 1897, and was met with again on the Collis Range in Somaliland, at nearly 6,000 feet elevation, by Dr. Drake-Brockman in 1914. Other specimens obtained by the same collector from the Arussi and

Boran countries in Abyssinia, attributed by Brown to *M. erubescens*, we believe to represent a distinct species. The material for our illustration has been provided from a living plant from Somaliland, presented to Kew by Dr. Drake-Brockman which has grown well and proved quite healthy in a warm succulent house under the treatment suitable for species of *Stapelia*. During the first two winters the stems formed in the preceding summers died down. It flowered in July, 1916, when the drawing was made, but has not done so again, though since then the stems formed have persisted, and the plant now possesses several of these, the longest of which is three feet long with a few leaves near the top. Young plants have been raised from cuttings, which root readily in spring.

DESCRIPTION.—*Herb*, with a perennial globose tuber 8–14 in. in diameter. Stems, 1–2 from each tuber, prostrate, succulent, simple or branching at the base, in the wild plant up to 6 in. long, in cultivated specimens sometimes up to 3 ft. long, about $\frac{1}{5}$ in. thick, finely puberulous. *Leaves* petioled, in cultivated plants varying in shape from orbicular-elliptic to wide ovate-lanceolate, in wild plants usually wide ovate-cuneate, apex shortly acute or cuspidate acuminate, $1\frac{1}{4}$ – $2\frac{1}{2}$ in. long and $\frac{3}{4}$ – $1\frac{1}{4}$ in. wide in cultivated specimens, only $\frac{3}{4}$ – $1\frac{1}{2}$ in. long and $\frac{2}{3}$ – $\frac{3}{4}$ in. wide in wild ones, margin crispately wavy, rather fleshy, green above, reddish with green veins beneath, finely and loosely puberulous; petiole from very short to $\frac{1}{3}$ in. long, densely puberulous. *Inflorescence* axillary, reduced to a solitary drooping cyathium surrounded by involucre bracts on a peduncle about $\frac{1}{3}$ in. long at time of flowering, but elongated in fruit; bracts united to the middle in a wide bell-shaped cup $\frac{3}{4}$ in. across, nearly $\frac{1}{2}$ in. deep, minutely apiculate, rather fleshy, white, finely veined with green and tinged towards the base with a rosy flush. *Cyathium* nearly sessile, globose-tubular, puberulous, pale green, $\frac{1}{4}$ in. across, cleft on one side to the middle, lobes 5, white, fimbriate, surrounded and overtopped by an entire thick yellow annular gland. *Male flowers* naked, mixed with fimbriate bracteoles. *Female flower* drooping, exserted from the cleft of the cyathium; perianth reduced to a very short somewhat undulate or lobulate cup surrounding the base of the ovary which is bluntly 3-gonous, the angles with narrow undulate wings. *Ripe fruit* unknown.

TAB. 9756.—Fig. 1, inflorescence; 2, involucre; 3, fimbriate lobe of cyathium; 4, male flower; 5, female flower; 6, sketch of an entire plant:—*all enlarged except 6, which is much reduced.*



M. S. del J. N. Puch. lith.

Vincent, Brooks, Day & Son Lith.

L. Reeve & Co. London.

TAB. 8348.

NEOGLAZIOVIA CONCOLOR.

Brazil.

BROMELIACEAE. Tribe BILLBERGIEAE.

NEOGLAZOVIA, *Mez in Mart. Flor. Bras.* vol. iii. pars 8, pp. 180, 426; *Engl. & Prantl, Nat. Pflanzenf. Nachtr.* i. p. 66.

Neoglaziovia concolor, *C. H. Wright*; species *N. variegatae*, Mez, affinis sed foliis uniformiter albo-lepidotis distincta.

Herba, caulis abbreviatus. *Folia* 5–8, linearia, acuminata, basi crassa vaginata, rigida, albo-lepidota, 40–60 cm. longa, 2.5 cm. lata; spinae inter se 1–1.5 cm. distantes, 4 mm. longae, basi compressae, subulatae, incurvae vel rarius rectae, aliquando parte foliorum suprema obsoletae. *Racemus* terminalis, quam folia brevior; pedunculus albo-floccosus; bractee lanceolatae, albo-floccosae, infima 10 cm. longa, superiores gradatim minores; pedicelli 5 mm. longi, patentes. *Calyx* cinnabarinus, ovoideus, glaber, 1.5 cm. longus; lobi breves, obtusi. *Petala* violacea, oblongo-spathulata, obtusa, 2 cm. longa; squamae basilares 2 mm. longae, laceratae. *Staminum* filamenta 1.7 cm. longa, crassa; antherae dorsifixae, ovales, albae, 2 mm. longae; pollinis granulae ellipticae, longitudinaliter 1-sulcatae, eporosae. *Ovarium* inferum, ovulis in loculis paucis; stylus staminibus aequilongus, ramis 3 brevibus spiraliter contortis instructus.—
C. H. WRIGHT.

The Bromeliad here figured is a native of the northern portion of the State of Bahia in Brazil, where it is known as the Makimbeira; here it grows in association with the Caroá, a very nearly allied plant referred by Baker to the genus *Dyckia* as *D. Glaziovii*, but treated by Mez, perhaps more satisfactorily, as the type of a distinct genus *Neoglaziovia*. From the Caroá (*N. variegata*) the Makimbeira (*N. concolor*) differs in its shorter stature and in having its leaves uniformly white-lepidote, the younger parts are indeed almost woolly; the leaves of *N. variegata* are glabrous or only very minutely lepidote, and when fresh are conspicuously marked with lighter transverse bars which in dried specimens become obscure or disappear entirely. The leaves of both species furnish fibre; that of the Caroá is well known and comes chiefly from the Queimadas District; it is made into ropes for binding

DECEMBER, 1910.

packages of tobacco. These ropes have a breaking strain of 3 tons to the square inch; they are, however, very sensitive to attack by alkalis. The fibre of the Makimbeira is less well known and is of a softer and poorer quality; attention to this fibre and to the plant itself was first called in 1902 by His Majesty's Consul at Bahia in a letter to the Imperial Institute. In 1903 living plants of the Caroá and the Makimbeira were received at Kew from the Imperial Institute; the latter, which flowered for the first time in a tropical greenhouse in September, 1909, provided the material for the figure now given. *N. concolor* has proved, as compared with Bromeliads generally, to be of very slow growth under the artificial conditions of a tropical collection; possibly under natural conditions it may thrive more luxuriantly. At Kew it is planted in a pot in peaty soil and kept in a warm moist house where it receives shade from bright sunshine.

DESCRIPTION.—*Herb*; stem very short. *Leaves* 5–8, linear, acuminate, thick and sheathing at the base, firm, white-lepidote, $1\frac{1}{2}$ –2 ft. long, 1 in. wide; spines 5–8 lin. apart, 2 lin. long, flattened at the base, subulate, incurved or occasionally straight, at times absent towards the apex of the leaf: *Raceme* terminal, shorter than the leaves; peduncle white-woolly; bracts lanceolate, white-woolly, the lowest 4 in. long, gradually decreasing in size upwards; pedicels under $\frac{1}{4}$ in. long, spreading. *Calyx* scarlet, ovoid, smooth, over $\frac{1}{2}$ in. long; lobes short, blunt. *Petals* violet, oblong-spathulate, blunt, $\frac{3}{4}$ in. long; basal scales 1 lin. long, lacerate. *Stamens* nearly as long as petals; filaments stout; anthers dorsifixed, oval, white, 1 lin. long; pollen-grains elliptic, with a single longitudinal groove and without pores. *Ovary* inferior; cells few-ovuled; style as long as the stamens, with three short spirally twisted stigmatic arms.

Fig. 1, vertical section of flower with inner perianth segments and stamens removed; 2, an inner perianth segment; 3 and 4, anthers; 5, style-arms; 6, ovules; 7, sketch of an entire plant:—all enlarged except 7, which is much reduced.



TAB. 6024.

NIDULARIUM SPECTABILE.

Native of Brazil.

Nat. Ord. BROMELIACEÆ.—Tribe ANANASSEÆ.

Genus NIDULARIUM, *Lemaire Jardin Fleuriste*, vol. iv., *Misc.*, p. 60, t. 441.

NIDULARIUM *spectabile*; acaule, cæspitosum, foliis rosulatis recurvis e basi late dilatata late loriformibus (ad 2-poll. latis) planiusculis minute distanter spinuloso-dentatis apice late sanguinea rotundatis ungue rigido terminatis supra viridibus subtus glaucescentibus albo transverse fasciatis, floribus in fasciculum multiflorum terminalem sessilem dense congestis bracteis lanceolatis acuminatis purpureis calycem aquantibus calycis lobis oblongis longe cuspidatis sanguineis, petalis infra medium in tubum connatis dein ellipticis acuminatis recurvis violaceis, antheris sessilibus.

NIDULARIUM *spectabile*, *T. Moore in Gard. Chron.*, 1873, p. 8.

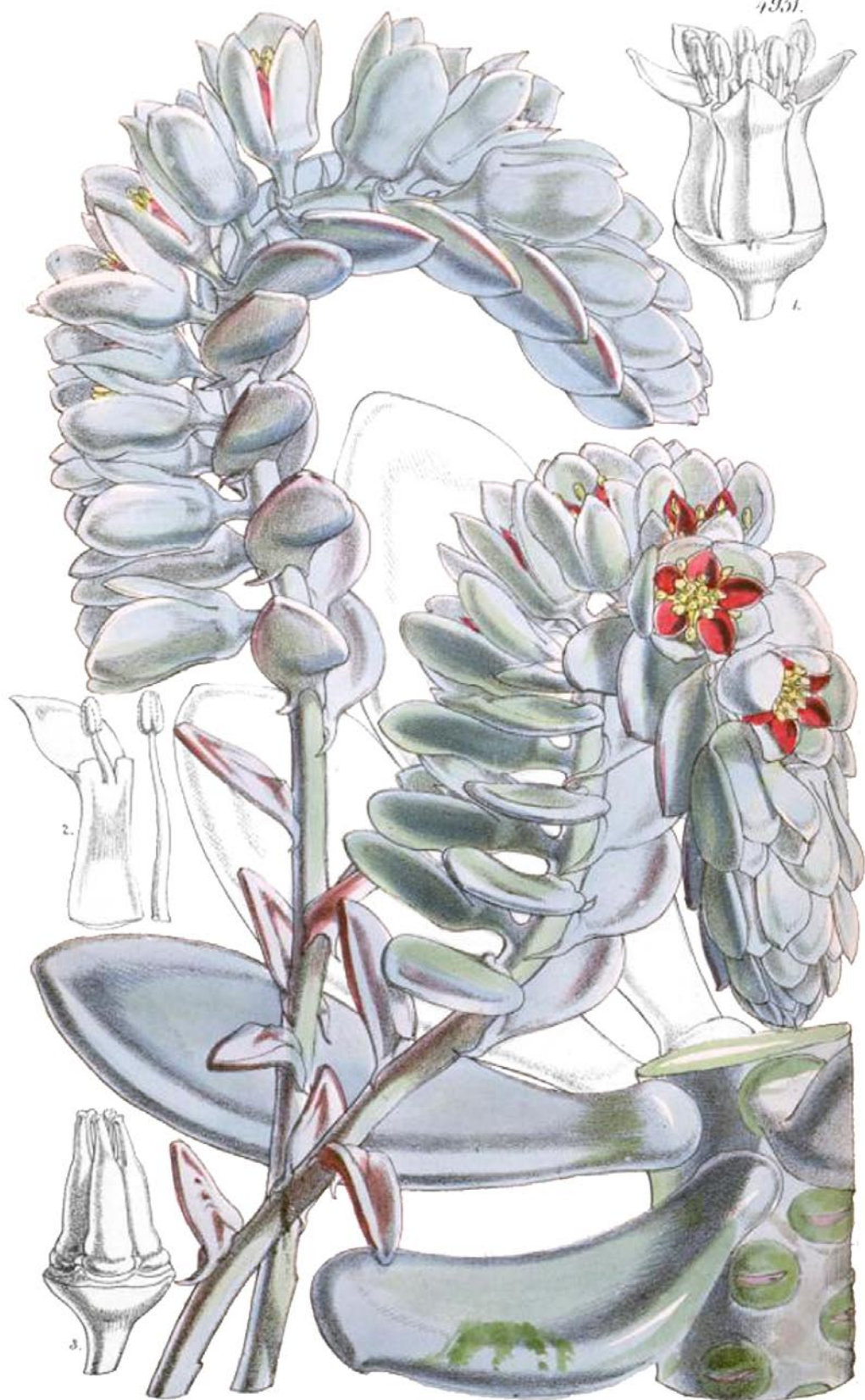
The genus *Nidularium* was established by Lemaire in 1854, and includes various species of the old genera *Bromelia*, *Billbergia*, &c., together with others, of which a dozen are enumerated by Morren, in his valuable "Catalogue des Broméliacées cultivées au Jardin Botanique de l'Université de Liege" (1873.) Amongst them *N. Meyendorffii*, Regel, (*Billbergia olens*, Tab. nost. 5502), is the only one quoted as being hitherto figured in the "Botanical Magazine." The genus is probably a large one, and we have dried specimens of the foliage of several Brazilian species, besides the considerable number that are in cultivation. *N. spectabile* was imported by Mr. Bull from the interior of Brazil, and flowered in his establishment in December, 1872. It is a very striking plant, allied to *N. Meyendorffii*, Lemaire (Ill. Hort. t. 245), but very distinct; and may at once be recognised from any species hitherto cultivated in England, by the singular bright blood-red ends

MARCH 1ST, 1873.

of the leaves, which form a clearly defined and singular contrast both to the bright green of the upper surface and the glaucous dull green of the lower surface of the leaf.

DESCR. Tufted, stemless. *Leaves* twelve to fourteen inches long by one and a half to two inches broad, inner shorter, broadly strap-shaped from a very broad sheathing base, slightly concave, points rounded with a beak-like cusp, margin with small remote spiny teeth, upper surface dark green except the tip, which presents a bright blood-red patch half an inch deep on both surfaces; under surface covered with alternate dull green and dirty white lepidote transverse bands; towards the base of the leaf the green bands are purplish. *Flowers* numerous in a crowded terminal flat-topped fascicle, one and three quarters to two inches in diameter, sunk amongst the uppermost leaves, spinulose from the prominent bracts, which are lanceolate concave, rose-purple above the middle, and terminate in acicular points. *Ovary* ovoid, white. *Calyx-limb* of three elliptic blood-red segments, terminating in erect acicular points, which equal the corolla-tube. *Corolla-tube* pale, obtusely 3-angled; limb three quarters of an inch diameter, of three spreading and recurved ovate acuminate violet-blue segments. *Anthers* linear-oblong, sessile in the mouth of the tube.—*J. D. H.*

Fig. 1, Whole plant *reduced*; 2, flower and bracts; 3, portion of tube and a segment of corolla with anthers; 4, ovary:—*all magnified*.



PACHYPHYTUM BRACTEOSUM.

Bracteated Pachyphytum.

Nat. Ord. CRASSULACEÆ.—DECANDRIA PENTAGYNIA.

Gen. Char. PACHYPHYTUM, *Kl.*—*Calyx* campanulatus, quinquepartitus, laciniis inæqualibus, filiformibus, corollam superantibus. *Corolla* perigyna, quinquepartita, hypocraterimorpha, limbi lobis patentissimis, in fauce ad marginem dilatato-involutis, cucullato-bilobis. *Stamina* 10, quorum 5 calyci, 5 petalis imposita, æquilonga, exserta. *Squamulæ* nullæ. *Germina* 5, libera, unilocularia; *ovulis* ad suturam ventralem plurimis. *Capsulæ* folliculares 5, in stylos subulatos attenuatæ, liberæ, intus longitudinaliter dehiscentes, polyspermæ. *Semina* minima, elongato-scobiformia.—*Suffrutex Mexicanus, carnosus, glaucescenti-albidus.* *Caulis brevis, crassus.* *Folia rosulata, magna, obovato-cuneiformia, crassa, car-nosa, obtuse apiculata.* *Flores secundi, dense spicati, bracteati;* spica apice cernua; bracteis magnis, crassis, obovatis, brevissime acutis, basi sagittatis, unilateraliter bifariam imbricatis. *Corollæ limbus coccineus. Kl.*

PACHYPHYTUM *bracteosum.*

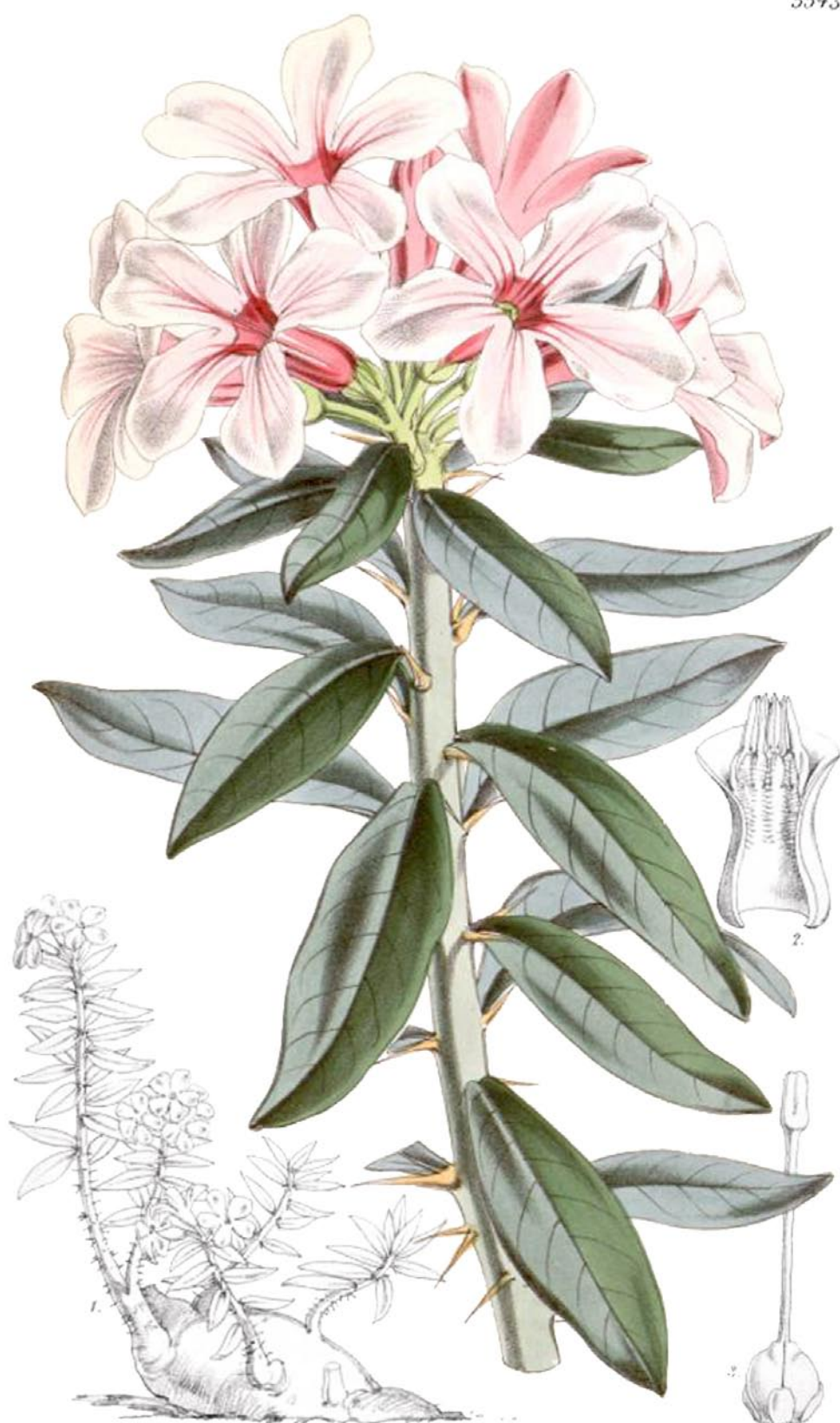
PACHYPHYTUM *bracteosum.* *Klotzsch in Otto et Dietr. Allgemeine Gartenzeitung, 9ter Jahrgang, p. 9. Klotzsch in Ic. Plant. Rar. Hort. Berol. p. 107. t. 43.*

This is a solitary species of a new genus, an inhabitant of Mexico, allied to *Echeveria*, but sufficiently distinct both in habit and in the structure of the flowers, and very remarkable in the curved, secund, bracteated spikes of flowers, in the large campanulate calyx, much exceeding the corolla in length, in the two spurs at the base of the leaves, of the peduncle, and of the bracteas, and in the two scales or ears at the base of the lamina of the petals. There is a most striking contrast between the colour of these petals and the pale glaucous lie of the large calyx and bracts, and all the rest of the plant; and the flowers are more readily brought into view by the curvature of the spikes. The plant only requires the protection of a temperate greenhouse. It flowers in the summer months, and the spike becomes erect after flowering.

DESCR. A suffruticose, very succulent *plant*: the rather short
NOVEMBER 1ST, 1856.

and thick *stem* scarred below with the fallen leaves, and, as well as the rest of the plant, singularly glaucous. *Leaves* large, thick, fleshy, spreading, clothing the upper part of the stem, rosulate, obovate, obtuse or with only an obtuse point, slightly concave above, convex beneath, the base, where set upon the stem, dilated: the scars formed by the fallen leaves, orbicular. *Peduncles* lateral, from among the leaves, erect, a foot or more long, sparingly leafy: its *bracteal-leaves* oblong or tongue-shaped, subsemiamplexicaul, often tinged with red, the base on each side prolonged into a spur. *Spike* four to six inches or more long, singularly drooping in flower, eventually erect. *Flowers* secund, large, subtended by large imbricating cordate bracteas, but in the opposite direction to the bracts: these *bracteas* are also bicalcarate at the base. *Pedicels* very short, thick. *Calyx* ample, almost an inch long, campanulate, deeply cut into five, ovate-oblong, glaucous, fleshy, subfoliaceous unequal segments. *Petals* five, erecto-patent, oblong, acuminate: at the summit of the broad claw are two obtuse, conspicuous auricles. *Limb* of the corolla red. *Stamens*: five free, alternating with the petals; five smaller ones, with short filaments, adnate with the petals. *Anthers* ovate. *Ovaries* five, oblong, with a fleshy disc at their base. *Styles* short, subulate. *Stigmas* capitate.

Fig. 1. Flower from which the calyx is removed. 2. Petal and two stamens:—*magnified*.



PACHYPODIUM SUCCULENTUM.

Succulent Pachypodium.

Nat. Ord. APOCYNACEÆ.—PENTANDRIA MONOGYNIA.

Gen. Char. *Calyx* 5-partitus; lobis lanceolatis, basi squamâ vel glandulis omnino destitutis. *Corolla* hypocraterimorpha, sub-5-fida, externe puberula; tubo interne sub staminum insertione pilis retrorsis per lineas quinque hispido, esquamato; lobis æstivatione sinistrorsum convolutis. *Antheræ* supra mediam tubi partem sessiles, sagittatæ, acumine longo apice polline destituto, medio stigmati adharentes. *Nectarium* e glandulis 5 discretis truncatis constans. *Ovaria* 2, ovata, glabra, nectario longiora. *Ovula* ∞. *Stylus* 1. *Stigma* oblongum, ad basim angulo cinctum. *Folliculi* (ex E. Mey.) compressiusculi, erectiusculi. *Semnina* obovata, subcompressa, pendula, ad umbilicum comosa, comâ multo breviora. *Testa* fulva, scabra, tenuis. *Albumen* tenuissimum, endopleurum simulans. *Embryo* rectus; radiculâ superâ, crassâ, ovoideâ, prope cotyledones rotundatâ, apice conoideâ; cotyledonibus rotundatis, basi cordatis, facie adpressis, subfoliaceis, radiculâ brevioribus.—Fruticuli *Capenses*, *erecti*; caudice *sphærico vel napiformi succulento*; ramorum epidermide *caducâ lævi cortice subtus viridi aculeis geminis ex epidermide sparsis*; foliis *intra aculeos axillaribus solitariis*, petiolo *subnullo*; floribus *apice ramorum approximatis axillaribus, roseo-albis*. *Alph. De Cand., Prod.* v. 8. 423.

PACHYPODIUM *succulentum*; ramis apice subvelutinis v. glabratis, foliis lanceolatis v. lineari-ovalibus acutis superne scabrido-pubescentibus glabrescentibus subtus pubescentibus v. tomentoso-pubescentibus, lobis corollæ obovatis obovato-oblongisve obtusis vel retusis.

PACHYPODIUM *succulentum*. *A. De Cand. l. c.*

ECHITES *succulenta*. *Thunb. Prodr.* 37.

BELONITES *succulenta*. *E. Mey. Comm.* 187.

PACHYPODIUM *tomentosum*. *Don, Gen. Syst. v. 4.* 78.

PACHYPODIUM *tuberosum*. *Lindl. Bot. Reg. tab.* 1321; *Lodd. Bot. Cab. tab.* 1676.

A South African plant, originally described by Thunberg, belonging to the same remarkable category as the *Adenium obesum* figured recently in this journal (Tab. 5418), and the two gouty-stemmed Vines, *V. Bainesii* and *V. macropus* (Tabb. 5472, 5479). The exceptional habit of these plants in the families to which

they respectively belong, affords an interesting problem for the consideration of those who incline to the derivative origin of species, and may be supposed to illustrate one kind of useful character, "selected," and thus apparently moulded, by the external conditions to which they have been exposed through a long period of time. There can be no doubt that our plant is the same as *P. tuberosum*, Lindl., the figure of which we quote above. At the time of publication of that species the true *P. succulentum* of Thunberg was not certainly known. Indeed M. A. De Candolle, in the 'Prodromus,' retains the two as distinct. They have been reduced to one species by M. Planchon (MS. note in Herb. Hook.). The caudex of another species of the genus *Pachypodium* (*P. bispinosum*) is said to be edible. Our figure is from a specimen flowered in the Royal Gardens, Kew, presented by W. W. Saunders, Esq., and sent home by Mr. Cooper from South Africa.

DESCR. *Caudex* much thickened and succulent, smooth, emitting erect or ascending, annual, succulent, leafy, glaucous or glaucescent branches, more or less armed below the leaves with straight, slender, acute, stipular spines. *Leaves* firm, dark-green, lanceolate, acute, entire, narrowed to the base, subsessile, obsoletely and rather roughly pubescent above, pubescent or somewhat tomentose beneath, about two inches long, half to three-quarters of an inch broad. *Stipular spines* most prominent on the lower part of the branches, in divaricate pairs, straight, slender, about a quarter of an inch long. *Flowers* terminal, umbellate, forming a head about four inches in diameter, very shortly stalked. *Calyx* very short, quinquepartite, with lanceolate lobes, pubescent or nearly glabrous. *Corolla* hypocrateriform, the spreading limb about equalling the tube, tube and limb rose-red beneath, obovate-oblong lobes of the latter paler above, throat deep-red, *Stamens* included; *anthers* sessile or with very short filaments, sagittate, adhering to the oblong *stigma*. *Ovaries* two, uniting above in the erect filiform *style*.

Fig . 1. Reduced figure of entire plant, showing the gouty stem or caudex. 2. Lower part of corolla-tube laid open, showing the anthers. 3. Pistil:—*magnified*.



(2642)

PITCAIRNIA ALBIFLOS. WHITE PITCAIRNIA.

Class and Order.

HEXANDRIA MONOGYNIA.

Generic Character.

Vide supra No. 2411.

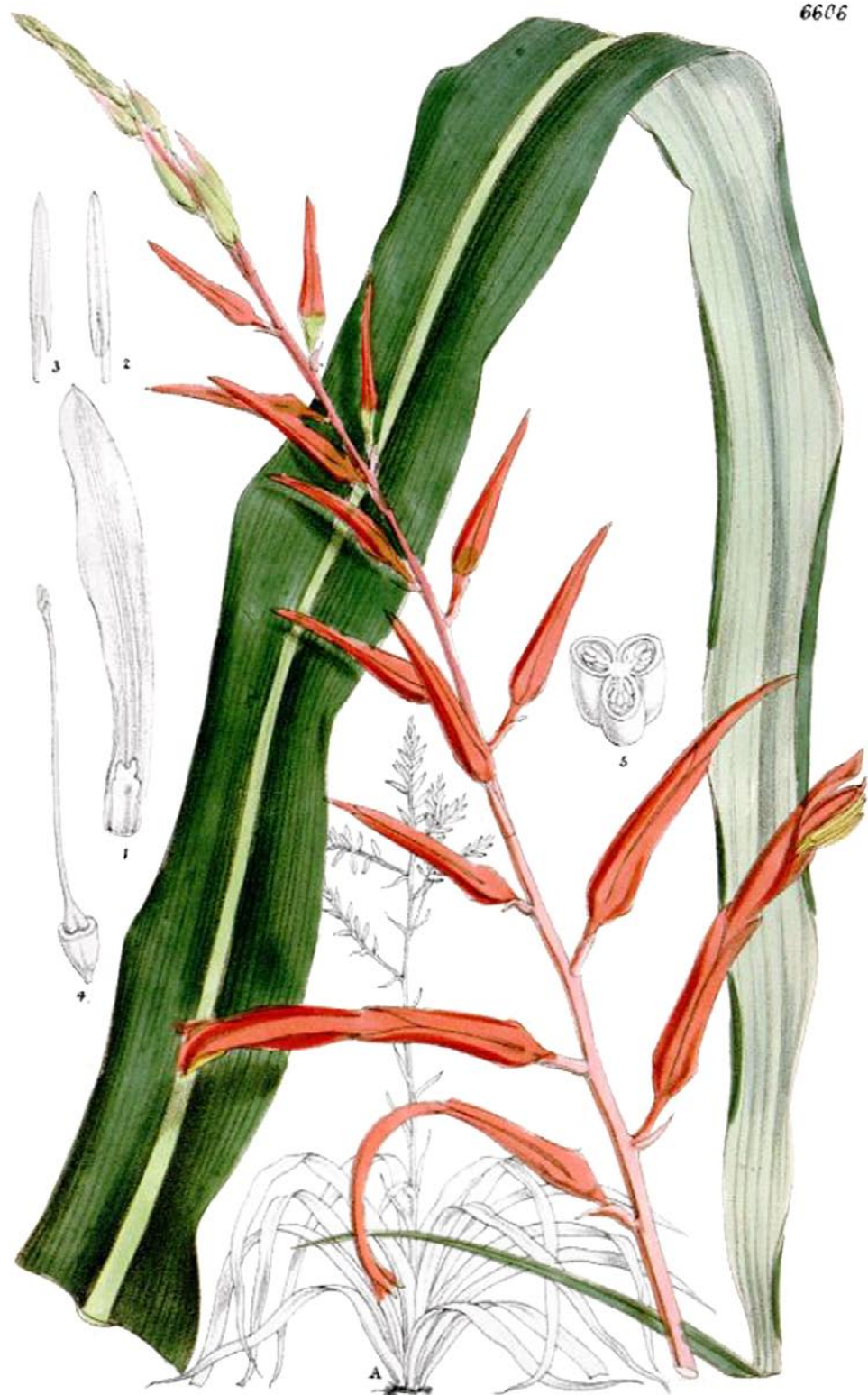
Specific Character.

PITCAIRNIA *albiflos*; foliis lineari-lanceolatis integerrimis glaberrimis longè acuminatis $\frac{5}{8}$ -unciæ latis, caule simplici, laciniis corollæ revolutis albis, stylo filamentis corollâ longiore, stigmate trifido albo.

This elegant white PITCAIRNIA was found amongst the matted roots of some parasites and rock plants, imported from the neighbourhood of Rio Janeiro, having been sent unheeded by the collector. It increases by suckers, and flowers freely. Our specimen flowered at Spofforth, in September, where other stems were also produced in November. It is cultivated in the stove, in peat, and requires but a small pot, as it grows naturally in moss and small patches of vegetable earth upon trees and rocks. Plants of this Pitcairnia may be seen at Mr. TATE's Nursery. W. H.

ERRATUM.

No. 2578. In the specific dcharacter of BRUNSVIGIA *Josephinæ*, for *duplo longioribus*, read *longiore*.



M. S. del J. N. Fitch Lith.

Vincent Brooks Day & Son Imp.

TAB. 6606.

PITCAIRNIA ALTA.

Native of the West Indies.

Nat. Ord. BROMELIACEÆ.—Tribe PITCARNIÆ.

Genus PITCAIRNIA, *L'Herit.*; (*Baker in Trimen Journ. Bot.* 1881, p. 225.)

PITCAIRNIA (*Eupitcairnia*) *alta*; acaulis, cæspitosa, foliis basalibus 12–20 lineari. latis 2–3-pedalibus acuminatis recurvatis facie viridibus glabris dorso persiatenter albo-lepidotis prope basin aculeis paucis corneis marginatis, pedunculo elongato floccoso foliis pluribus valde reductis prædito, racemis pluribus laxis in paniculam amplam aggregatis, pedicellis brevibus, bracteis parvis lanceolatis, sepalis lanceolatis uncialibus splendide rubris, petalis concoloribus calyce duplo longioribus basi appendiculatis, genitalibus petalis æquilongis.

P. alta, *Hassk. Retzia*, vol. ii. p. 5; *Baker in Trimen Journ. Bot.* 1881, p. 266.

P. ramosa, *K. Koch in Walp. Ann.* vol. vi. p. 82, non *Jacq.*

This is the finest, for horticultural purposes, of all the Pitcairnias of the *bromelifolia* group, as it has an inflorescence five or six feet in height, made up of numerous racemes of flowers in which both calyx and corolla are a brilliant coral-red. Although it is now figured for the first time, it has been many years in cultivation, having been first clearly individualized and excellently described from plants of unknown origin in the Botanic Garden at Buitenzorg by Dr. Hasskarl in 1856. Our Kew plant was received many years ago from Dominica, from Dr. Imray. Our drawing was made from this when it was in flower last July. A fine specimen was sent by Mr. Bull to the Kew Herbarium to be named in October, 1878. A specimen kindly sent for comparison by the late Dr. Karl Koch shows that this was the plant intended under the name of *Pitcairnia ramosa* in the monograph of the genus which he published in the Report of the Berlin Garden for 1857, but the true plant of Jacquin is totally different.

DESCR. Acaulescent, densely tufted. *Basal leaves* from FEBRUARY 1ST, 1882.

twelve to twenty to a flower-stem, linear-lorate, two or three feet long, three-quarters of an inch or an inch broad at the middle, narrowed gradually to a long point and to a quarter of an inch above the dilated base, where it is armed with a few small brown-black horny prickles, bright green on the face, persistently white-lepidote on the under surface, recurving from about the middle. *Peduncle* two or three feet long below the inflorescence, floccose, furnished with a few much-reduced leaves. *Racemes* several, very lax, arranged in a deltoid panicle; pedicels ascending, a quarter or half an inch long; bracts lanceolate, scarcely longer than the pedicels. *Calyx* bright red, above an inch long, adhering to the ovary at the cuneate base; sepals lanceolate. *Petals* twice as long as the sepals, the same colour, unilateral when expanded, furnished with a distinct scale at the base. *Stamens* as long as the petals; anthers linear, basifixed, half an inch long. *Style* reaching up to the summit of the anthers; stigmas convolute.—*J. G. Baker.*

A, the whole plant, *much reduced*; fig. 1, a petal; 2 and 3, anthers; 4, pistil; 5, horizontal section of ovary:—*all more or less magnified.*



TAB. 6480.

PITCAIRNIA ANDREANA.

Native of Venezuela and New Granada.

Nat. Ord. BROMELIACEÆ.—Tribe PITCAIRNIEÆ.

Genus PITCAIRNIA, *L'Herit.*; (*K. Koch in Walp. Ann.* vol. vi. p. 78).

PITCAIRNIA *Andreana*; acaulis, foliis basalibus rosulatis, exterioribus rudimentariis nullo modo spinosis, interioribus productis 4–6 loratis acutis integris pedali-bus vel sesquipedalibus facie viridibus conspicue albo-lepidotis dorso subtiliter persistenter albo-lepidotis, pedunculo brevi lepidoto foliis paucis consimilibus reductis prædito, racemo simplici compacto paucifloro, pedicellis brevibus as-cendentibus, bracteis parvis lanceolatis, sepalis lanceolatis viridibus tenui-terlepidotis, petalis oblanceolatis obtusis splendide rubro-luteis calyce triplo longioribus, genitalibus petalis æquilongis.

P. Andreana, *Linden in Ill. Hort. New Series*, vol. xx. t. 139.

P. lepidota, *Regel in Act. Hort. Petrop.* vol. ii. p. 435.

This new *Pitcairnia* is remarkable in the genus for its dwarf habit, broad entire mealy leaves, and simple close raceme of very large bright-coloured flowers, which shade off from scarlet to bright yellow. One of its nearest allies is *P. flavescens*, figured Bot. Mag. tab. 6318, a species which I find by comparison with an authenticated example kindly lent to us by the late Dr. Karl Koch, to be identical with the earlier-named *P. xanthocalyx* of Martius. The present plant was introduced by Linden in 1872 from the province of Choco in New Granada, and about the same time was sent home from Venezuela by Roezl. Our drawing was made from a specimen that flowered at Kew in July, 1879, which was received from Dr. Regel.

DESCR. Whole plant under a foot high. *Leaves* aggregated in a basal rosette, the outer undeveloped ones entirely without spines on the edge, the inner developed ones not more than four or six, lorate, chartaceous in texture, acute, a foot or a foot and a half long, an inch or an inch and a half broad at the middle, narrowed to about a third of an inch above the base, the face green, scattered

MARCH 1ST, 1880.

over with conspicuous white lepidote scales, the back finely persistently white lepidote all over, the edge quite entire. *Peduncle* four or six inches long, finely lepidote, furnished with several reduced leaves. *Raceme* simple, four or six inches long; pedicels ascending, not more than a quarter or a third of an inch long; bracts small, lanceolate. *Calyx* about three-quarters of an inch long, the base adnate to the ovary; segments lanceolate, green, horny, thinly lepidote. *Petals* oblanceolate, about two inches and a half long, unilateral in the expanded flower, bright scarlet in the lower part, passing into bright red upwards. *Stamens* nearly as long as the petals; anthers erect, linear, a quarter of an inch long. *Style*-arms strongly twisted.—*J. G. Baker.*

Fig. 1, scale from the upper side of the leaf; 2, anthers; 3, pistil; 4, style-arms untwisted; 5, style-arms, with their natural twist; 6, horizontal section of ovary:—*all magnified, except 3.*

N^o 1547.



Wm. Edwards. Del.

Pub. by J. D. Smith. New York. 1840.

PITCAIRNIA ANGUSTIFOLIA. NARROW-
LEAVED PITCAIRNIA.

Generic Character.—*Vide No. 1416.*

Specific Character and Synonyms.

PITCAIRNIA *angustifolia*; (*flos irregularis, obsoletius squamiger*;) foliis plurimis, erecto-divergentibus, strictiusculatis, angustius loratis, longius attenuatis, convoluto-concavis, laxius spinuloso-marginatis, dorso pellicula pruinosa albicantibus; caule pubescente, simplici, subramosove; racemo laxo multifloro, patulo; pedicellis villosis, flore aliquoties brevioribus; bractea illis æquali, villosa, convolutofubulata, appressa; calyce villoso; corolla hunc triplo excedente, laciniis superne versus explicatioribus atque in labium unicum detectis antheris incumbens distortis; squama brevi, bifida, incurvula, erosula; filamentis alternis angulo singulo germinis oppositis simplicioribus, intermediis membrana brevissima transverse extensa bifidius repanda infertis; antheris lineari-elongatis; stigmatibus in lobum contortis. G.

PITCAIRNIA *angustifolia*. *Hort. Kew.* 1. 401. *ed.* 2. 2. 202. *Willd. Sp. Pl.* 2. 10. *Specimen archetypum ex Hort Kew. in Herb. Bankf.*

(β.) Specimen ex Insula Sanctæ Crucis in Herb. Bankf. G.

PITCAIRNIA *angustifolia*. *Lil. a Redouté. tab.* 76.

Our plant is evidently the same with the specimen from which the species was instituted; but it does not seem to agree so exactly with the spontaneous one deposited along with that in the Bankian Herbarium; this had been brought from the Island of Santa Cruz, by Mr. RYAN, in 1777; and is certainly the same with the plant given by REDOUTÉ; which seems to differ from ours in having narrower leaves, shorter flowers, and larger and more conspicuous flower-scales. But as those who first recorded the species have deemed our plant the same with that introduced Mr RYAN, and of course with his specimen, it is very probable

probable that there apparent differences may be the effect of culture or accident. In the mean time we have given them as distinct varieties. A specimen of our plant flowered this year in Mr. VERE's collection with pale yellow flowers; but we were assured by the superintendant, Mr. ANDERSON, that the same plant had in preceding seasons produced a bloom of the colour shewn in our plate, and that the present was probably caused by a long-continued want of sun. The marginal spines on the root-sheaths are reflex. The PITCAIRNIA *lanuginosa* (*Ruiz y Pavon Flor. Per. 3. 35. tab. 258.*) comes very near to this species, but the upper part of the leaves are spineless, and the flowers of a pale violet colour. G.

ERRATA.

No. 1506, l. 6; pro "opposita" lege "oppositæ."

No. 1533, verf. fol. l. 6; pro "species" lege "specimen."

No. 1537, l. 9; pro "eorum" lege "earum."

No. 1540, verf. fol. a pag. calce, l. 8; for "Ree's" read "Rees's"

N^o 1416.



Edw. Edwards Del.

Publ. by J. Curtis Walworth Oct. 1. 1844.

E. Sanford Sc.

PITCAIRNIA BRACTEATA (β .) SULPHUREA.

YELLOW-FLOWERED PITCAIRNIA.

Class and Order.

HEXANDRIA MONOGYNIA.

Generic Character.

Inflor. seorsim bracteata. *Cal.* semisuperus, trifidus, tubuloso-connivens segmentis acuminatis, persistens. *Cor.* longior tripetaloideo-partita, segmentorum calycinorum basi imposita, tubuloso-convoluta, regularis ore brevi patula irregularifve atque unilabiato-inflexa, decidua, modo arcuato-emarcescens, laciniis ligulato-ellipticis isometris sæpius basi intus membrana subquamiformi concava a dorso partim adnata appendiculatis. *Stam.* tota libera ex eodem ac corolla puncto. *Fil.* compresso-filiformia. *Anth.* sagittato-lineares, erecto-continuae. *Stylus* subulatum elongatus, trifulco-trigonus, semiimmersi germinis apicem continuans, deciduus. *Stig.* 3, canaliculato-linearia, in unum spiraler contorta. *Capf.* basi adnato calyce cincta inde velata, ovato-pyramidata, tricocca, trigona, coccis futura media introrsum dehiscentibus. *Sem.* numerosa lineari-oblongata, alata utrinque membranaceo-caudata, gemino ordine introflexæ futuræ margini annexa. G. HEPETIS. *Schwartz. Schreber.*

OBS. Herbæ perennes; radix rhizoma fibrosum stoloniferum; folia a plano obversa, radicalia vel inferne caulina, plurima, e deorsum imbricato-ambientibus erecto-divergentia, lorato-lanceolata, convoluta-concava pellicula lanuginosa deterfu facili subtus albescentia, margine sæpius aculeato-dentata; caulis centralis radicalis, foliolis stipatus, simplex vel ramosus; racemus a spicato conferto ad diffusum atque pauciflorum; calyx raro herbaceus. G.

Specific Character and Synonyms.

PITCAIRNIA bracteata; (flores unilabiato-irregulares, squamigeri;) foliis lorato-attenuatis lateribus reflexis, margine subdentulis, a prono albo-lanuginosis; caule simplicissime valido tereti, goffypino-lanato, foliolis squamato; racemo numeroso picato imbricatim congesto, floribus ascender divergentibus; bracteis ciliatis calycem exæquantibus; pedicellis pubescentibus flore aliquoties brevioribus; calyce extus tomentoso, corolla duplo brevior; corollæ laciniis

laciniis cochleari-ligulatis, e deorfum convoluto-angustatis in laminam ovatam concaviusculam explicantibus, totis furfum fibimumo incumbentibus, duobus tertiam ummam versus obliquatim inflexis; squama denticulata. G.

PITCAIRNIA *bracteata*. Hort. Kew. ed. 2. 2. 202.

(α .) calyce colorato; floribus rubris. G.

P. *latifolia*. Lil. a Redouté, tab. 73. 74. nec aliorum; (minus recte supra in No. 856, ad ipsam latifoliam excitata.)

(β .) calyce herbacea; corolla fulphureo-lutescente. G.

P. *fulpburea*. Bot Repofit. tab. 249. Lil. a Redouté, fol. 7. pag. alt. abfque Icone.

This is the most robust as well as clofely flowered fpecies of any of the genus yet known to us. We have not met with the red-flowered plant in any of our collections; but Monf. REDOUTÉ, who has publifhed it in his “Liliacees” under the name of *latifolia*, fays, that he received it from Mr. WOODOR’s collection in this country, by the name PITCAIRNIA *racemofa*, and that it came originally from the Weft-Indies. The yellow flowered plant now given, is a native of the Ifland of St. Vincent, whence it was introduced by Mr. EVANS about 1799. We agree with the editor of the fecond edition of the Hortus Kewenfis in the belief that the two plants are mere varieties of each other.

The ftem of our fpecimen was about two feet high, and towards the bafe about the thicknefs of a man’s finger. Requires to be kept in the bark bed of a ftove, where it blooms early in the fummer. Flowers about an inch and a half long; fcentlefs; three or four expanding at a time, and decaying in the pace of a few hours. Propagated by fuckers. G.

NOTE.

No. 856, L. 12 dele “Lil. a Redouté, tab 74.”



Sed. Elvardo del Pub (by T. Curtis, 3rd Geo. Crescent Mar 1 1895. F. Sanborn copy.)

PITCAIRNIA BROMELIÆFOLIA. SCARLET
PITCAIRNIA.

Class and Order.

HEXANDRIA MONOGYNIA.

Generic Character.

Cal. 3-phyllus, semisuperus. *Pet.* 3, squama nectarifera ad basin petalorum. *Stigm.* 3, contorta. *Capf.* 3, introrsum dehiscentes. *Sem.* alata. HEPETIS. *Gen. Plant. Schreb. n.* 1741.

OBS. Si calyx monophyllus appellandus, germen erit superum, tubo calycis semiimmersum et adnatum, stamina et petala fauci calycis inserta. Si vero major calycem triphyllum dicere, germen erit semiinferum, stamina, petala, et calyx receptaculo germen cingenti inserta. Dryand. MSS.

Rectiusne Cal. 6, Cor. sexpartita, laciniis inæqualibus, cylindrice conniventibus, extimis calycem mentientibus? G.

Specific Character and Synonyms.

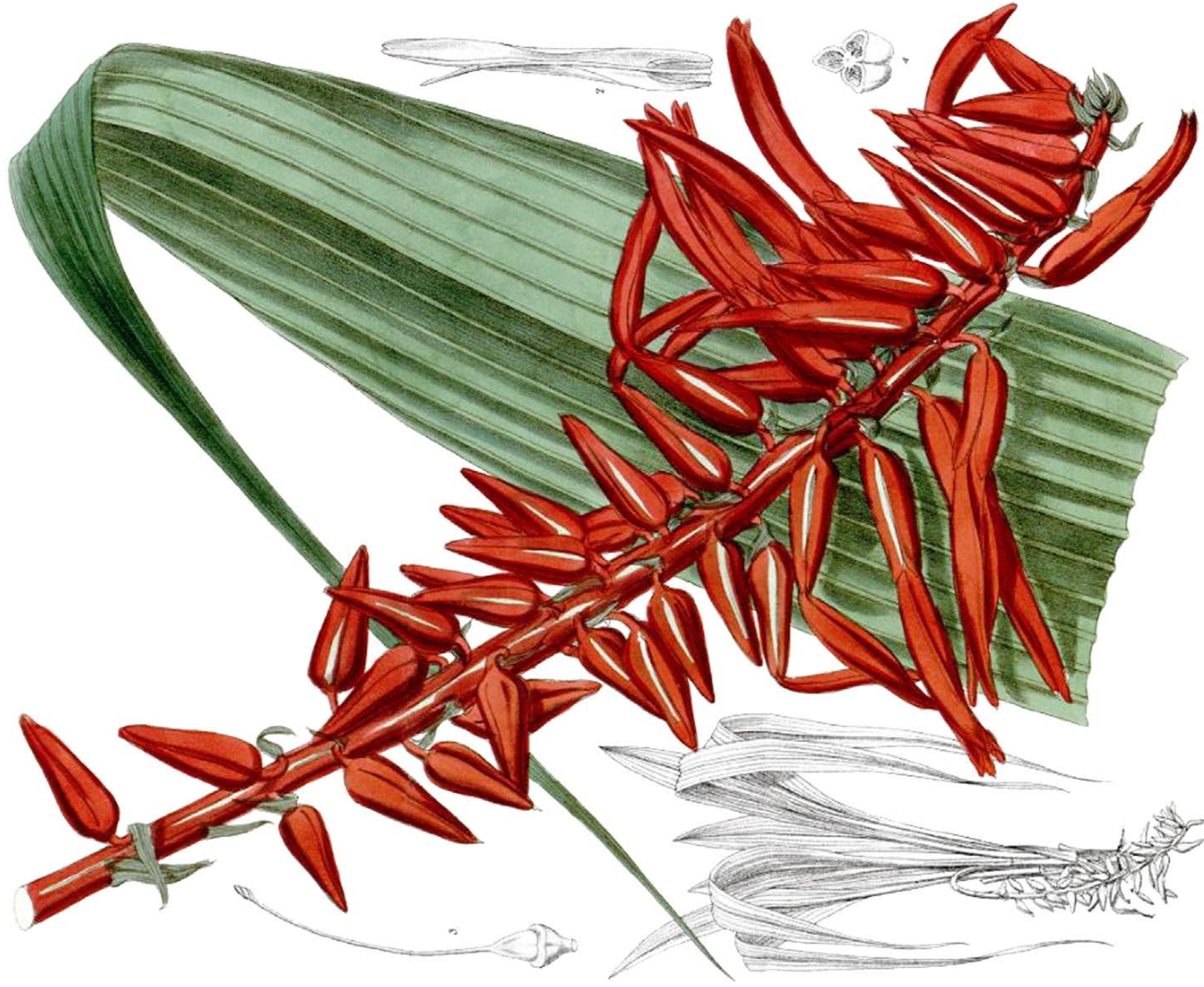
PITCAIRNIA *bromeliæfolia* foliis ciliato-spinosis; racemo patulo ebracteato; pedunculis germinibusque glaberrimis.

PITCAIRNIA *bromeliæfolia*. Hort. Kew. 1. 401. Schneev. et Geuns Ic. Fasc. 4. t. 11. L'Herit. Sert. Angl. 7. t. 11. Swartz Fl. Ind. Occid. 1. p. 580. Mart. Mill. Dict. Dryand. in Linn. Transf. v. 2. p. 230. Willd. Sp. Pl. 2. 10. Lil. à Redouté, t. 75.

HEPETIS *angustifolia*. Swartz Prod. 56.

An inhabitant of Jamaica, where it is said to grow on the shady sides of mountains. First cultivated in this country by Lord ASHBURTON as far back as 1781; flowers in April and May, although our specimen did not until August.

The rachis of the raceme as well as peduncles and corolla are of a fine scarlet colour; the latter is persistent, changing to a greenish and lastly to a brownish hue. The transparent scale at the inner base of each segment is of an ovate form, truncate at the top, crenate, attached by its back, while the edge and summit are free. Radical leaves from three to four feet long, scarcely an inch broad when flattened. Scape terminal, upright, about a foot high, many-flowered, and generally simple. Calyx or outer segments of the corolla three times shorter than the corolla or inner segments. It is a very ornamental plant; requires to be kept in the tan-pit; often seeds; but is generally propagated by offsets. G.



TAB. 6600.

PITCAIRNIA CORALLINA.

Native of New Granada.

Nat. Ord. BROMELIACEÆ.—Tribe PITCAIRNIEÆ.

Genus PITCAIRNIA, *L'Herit.*; (*Baker in Trimen Journ. Bot.* 1881, p. 225.)

PITCAIRNIA *corallina*; acaulis, cæspitosa, foliis rosulatis, exterioribus rudimentariis scariosis integris, centralibus 6–8 productis longe petiolatis lanceolatis acuminatis medio recurvatis plicatis facie viridibus glabris dorso albo-furfuraceis, pedunculo cernuo subpedali glabro rubro, racemo pendulo subdenso, pedicellis brevibus, bracteis parvis lanceolatis, sepalis lanceolatis splendide rubris, petalis lingulatis basi appendiculatis calyce triplo longioribus, genitalibus petalis æquilongis.

P. *corallina*, *Linden et André; Carrière in Rev. Hort.* 1875, p. 321, *cum icone*; *Baker in Trimen Journ. Bot.* 1881, p. 272.

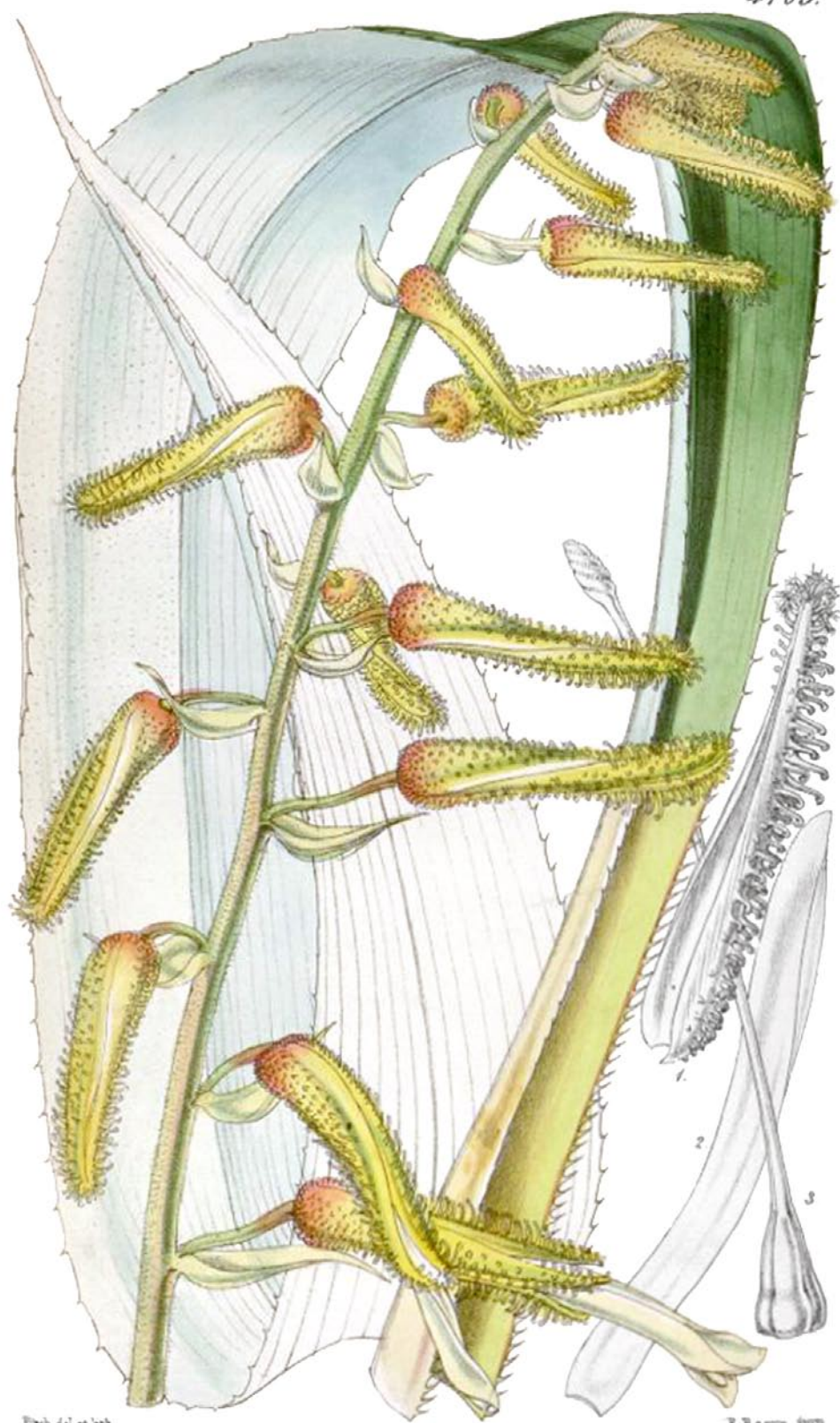
This is a most distinct plant, the finest for decorative purposes of all the seventy known species of the genus. Its broad plicate leaves narrowed into a long petiole, and its dense drooping racemes of large spreading flowers, in which peduncle, axis, calyx and corolla are all of one brilliant coral-red, mark it at a glance from all the other species, and stamp it as one of the most effective of all the cultivated Bromeliaceæ. It was introduced about 1870, by Linden from the Andes of the province of Choco, in New Granada. It flowered for the first time in Europe with Baron Rothschild at Ferrieres near Paris in 1874. Our drawing was made from a plant that flowered last spring with Sir George Macleay at Pendell Court, near Bletchingley, under the care of Mr. Charles Green.

DESCR. Acaulescent, densely cæspitose. *Leaves* rosulate, the outer unproduced ones hard and dry, without any marginal spines; produced leaves six or eight to a rosette, with an erect petiole about a foot long, which is margined by small decurved horny brown spines, and a lanceolate lamina two or three feet in length, three or four inches

JANUARY 1ST, 1882.

broad at the middle, tapering gradually to the base and acuminate apex, plicate like the leaf of a *Curculigo*, recurving abruptly from about the middle when mature, green and glabrous on the face, while furfuraceous over the back. *Peduncle* arising from the base of the tuft of leaves, abruptly recurved, about a foot long, bright red like the flowers, as are also the axis of the raceme and the pedicels. *Raceme* drooping, moderately dense, a foot long; pedicels about a quarter of an inch long, spreading or cernuous; bracts small, lanceolate, scariose. *Sepals* lanceolate, horny, an inch long. *Petals* lingulate, exerted a couple of inches beyond the sepals, furnished with a large oblong basal scale, which is free at the summit and along the edges. *Stamens* as long as the petals; filament white, filiform; anther linear, half an inch long; pollen yellow. *Ovary* ampullæform, immersed at the base only; style filiform, about two inches long; stigmas spirally twisted.—*J. G. Baker.*

Fig. 1, The whole plant, *much reduced*; 2, petal, with its basal scale, and a stamen, *life-size*; 3, pistil, *life-size*; 4, horizontal section of ovary, *enlarged*.



TAB. 4709.

PITCAIRNIA ECHINATA.

Echinated-flowered Pitcairnia.

Nat. Ord. BROMELIACEÆ.—HEXANDRIA MONOGYNIA.

Gen. Char. (*Vide supra*, TAB. 4241.)

PITCAIRNIA *echinata*; foliis radicalibus elongatis lanceolatis acutissimis striatis subtus parce farinosis spinuloso-serratis inferne attenuatis semicylindraceis (magis spinosis), caule parce folioso longissimo pulverulento-tomentoso apice laxè racemoso-paniculato multifloro, sepalis setis mollibus flavo-virescentibus apice uncinato-glandulosis echinatis, petalis (albis) calycem fere duplo superantibus, staminibus styloque inclusis.

A well-marked species of *Pitcairnia*, received from Mr. Linden, under the name of "*Pourretia*," probably from Mexico, but of the locality we can only conjecture. In no work can I find any such plant described, either under *Pourrelia* or *Pitcairnia*, or any allied genera, the limits of which we must confess are at present very ill-defined. I see no reason however for considering this other than a true *Pitcairnia*, as the genus is usually considered. It threw up its fine flowering-stems in January 1853, and continued a long time in blossom.

DESCR. In a flowerless state this *plant* may be considered stemless; the *leaves* being all radical, as in the common Pine-apple, very long, two to three feet, elongato-lanceolate, very acuminate, carinate, striated, rather full green and glabrous above, beneath pale-coloured and floccoso-farinose, the margin is serrato-spinulose, but not very strongly so, except towards the much-attenuated, conduplicate and almost sheathing, yellow-brown base, where the spines are much longer, very numerous, and crowded, and curved upwards. As the flowering-season approaches, a stem is thrown up from the centre, which elongates, bearing few and gradually smaller leaves, till it forms the almost leafless base of the slightly compressed, terminal raceme, when the leaves insensibly become bracteas. The scape is everywhere pubescenti-

APRIL 1ST, 1853.

furfuraceous, terete. *Pedicels* about an inch long, supported by an ovate, acuminate, concave, membranaceous *bractea*, ciliated at the edge, and about equal to the pedicel in length. *Flowers* pendent, large. *Calyx* of three, long, slightly twisted, linear-oblong, attenuated, deeply canaliculate *sepals*, broader and red at the base, the rest full yellow, and everywhere clothed (except at the membranous overlapping edges) with soft, copious, spine-like, horizontal processes, uncinatate at the apex: the shortest and least uncinatate are at the base of the sepals, those at the extremity are tipped with a pencil of hairs. *Petals* white or cream-colour, more than half as long again as the sepals, slightly twisted, linear-subspathulate, slightly concave below the point, with no internal scale at the base. *Stamens* included, a little shorter than the petals. *Ovary* pyramidal, three-furrowed. *Style* as large as the stamens. *Stigmas* three, spirally twisted.

Fig. 1. Sepal. 2. Petals. 3. Pistil:—*slightly magnified*.



PITCAIRNIA EXSCAPA.

Stemless Pitcairnia.

Nat. Ord. BROMELIACEÆ.—HEXANDRIA MONOGYNIA.

Gen. Char. (Vide supra, TAB. 4241.)

PITCAIRNIA *exscapa*; caule brevissimo pseudo-bulboso, foliis fere omnino radicalibus lineari-elongatis tenuissime longissime acuminatis integris, vaginis inflatis margine superno ciliato-asperis, spicis radicalibus capitatis ovatis imbricatim bracteatis subsessilibus, bracteis lanceolato-acuminatis exterioribus calycibusque hirsutis spinis acicularibus nigro-fuscis intermixtis, petalis lineari-oblongis galeato-curvatis basi intus nectariferis.

This very curious and rather handsome *Pitcairnia* was detected, as an infant plant, among some Orchidacæ purchased from New Grenada, by Mr. Jackson of the Kingston Nursery, Surrey. They were carefully reared, and our figure represents two of them in a flowering state. The species is remarkable for the great length of the very attenuated leaves, and no less so for the sessile and densely bracteated spike of red flowers. I can nowhere find such a species described. It belongs, as far as the structure of the flower is concerned, to the same groupe as *Pitcairnia suaveolens*, Lindl., figured in Botanical Register, t. 1069, that is to say, where the petals have a certain twist, occasioning their apices to point one way, and there is, moreover, a curvature there, giving a galeated character to these petals. We possess, from New Grenada, two other stemless and scapeless (or nearly so) *Pitcairnias*, and there, too, the bracteas are mixed with black spines: but in those the spines themselves bear short spreading spines on the sides.

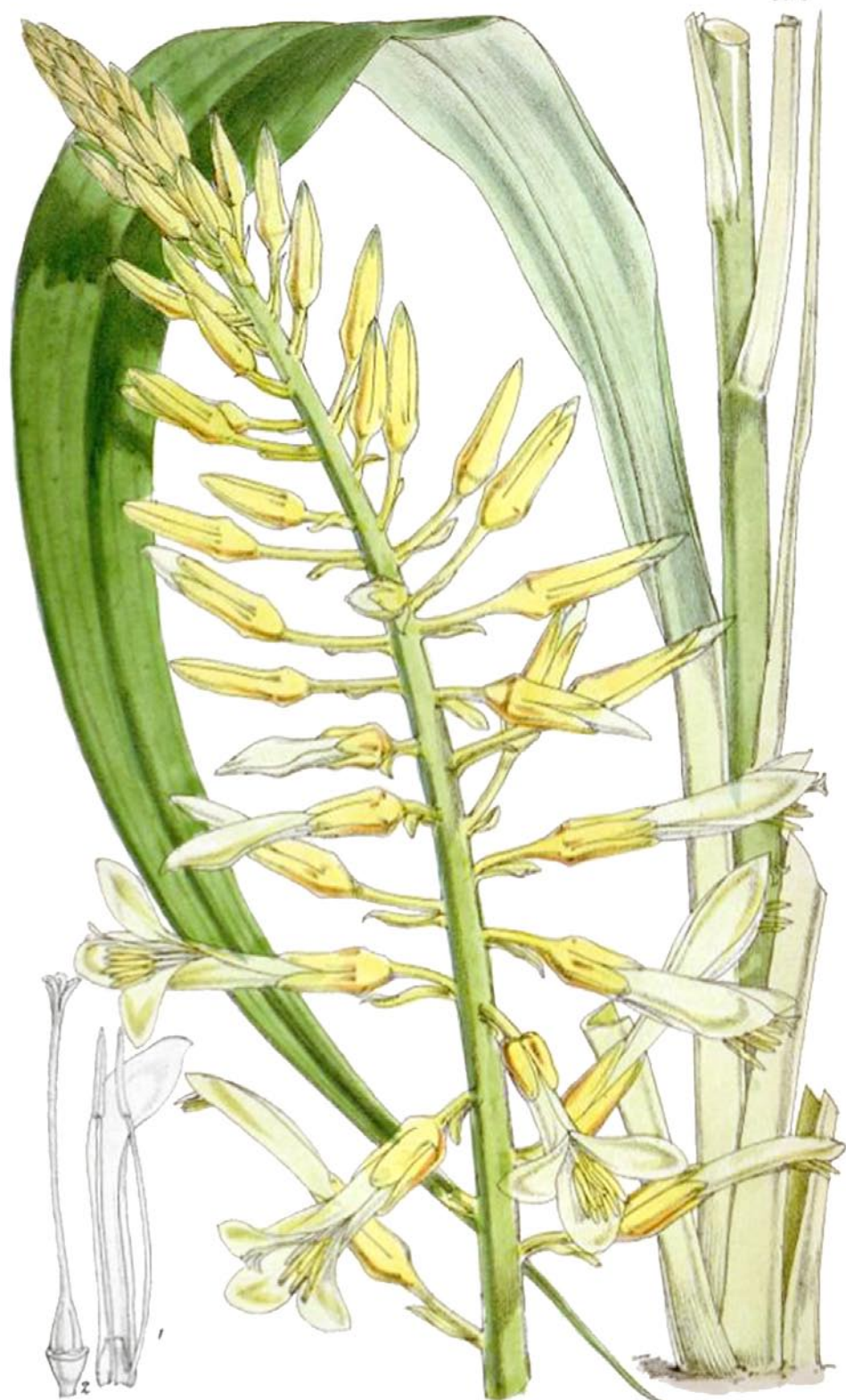
DESCR. Stemless. or nearly so. A kind of pseudo-bulb is formed at the base of the plant, sheathed by the dilated, dark brown bases of the outer leaves. The leaves, therefore, may be said to spring from the root, and are, many of them, full three feet long, like those of a coarse *Carex*, linear, carinated externally and gradually attenuated into a very long narrow point, quite

JULY 1ST, 1851.

entire, glabrous, a part of the upper margin of the sheath being alone ciliated, rather strongly so. From the centre of these leaves appears a nearly sessile, ovate head of *flowers*, in part concealed by numerous *bracteas*, imbricating each other; the inner ones longer, narrower, yellowish-green, glabrous, the outer brown, broader, and hairy or cobwebby: these bracteas are intermingled with a few strong, acicular, almost brown *spines*. *Calyx* quite concealed by the bracteas, yellow-green: *sepals* lanceolate, acuminate, hairy. *Petals* red, curved and galeate, bearing a notched scale at the base within. *Stamens* shorter than the petals. *Ovary* superior, trisulcate. *Style* elongated. *Stigmas* three, twisted. *W. J. H.*

CULT. This plant requires a warm stove, and thrives in any kind of light open soil not retentive of moisture. Care must be taken not to water it too copiously. The old roots of this species, like those of many of its allies, after a time lose their vitality, and, by their continued increase, become a nidus of support to the succeeding young roots; but in cultivation it is advisable occasionally to turn the plant out of the pot and divest it entirely of the old roots, at the same time cutting away the lower part of the caudex, which will also be found to be dead. The plant on being repotted will soon emit young roots, and show a more vigorous growth. It is increased by offsets, and our plant shows at this time the appearance of producing perfect seeds. *J. S.*

Fig. 1. Flower. 2. Petal. 3. Pistil:—*magnified*.



TAB. 6318.

PITCAIRNIA FLAVESCENS.

Native of Topical America.

Nat. Ord. BROMELIACEÆ.—Tribe PITCAIRNIEÆ.

Genus PITCAIRNIA, *L'Herit.*; (*K. Koch in Walp. Ann.* vol. vi. p. 78).

PITCAIRNIA *flavescens*; acaulis, foliis circiter 20 dense rosulatis lorato-lanceolatis tenuiter chartaceis 2–3-pedalibus facie viridibus dorso albidis aculeis marginalibus nullis, scapo sesquipedali tenuiter floccoso foliis 3–4-valde reductis, linearibus bracteato, racemo laxo subpedali, pedicellis patulis petalis 2–3-plo brevioribus bracteis lanceolatis longioribus, ovario basi distincte immerso, sepalis coriaceis lanceolatis nudis petalis lingulatis pallide luteis basi squamatis subtriplo brevioribus, genitalibus petalis æquilongis.

COCHLIOPETALUM *flavescens*, *Beer, Die Fanmil. der Bromel.* p. 69.

This is a fine plant, which has been known in cultivation for several years, but which has never been figured or even fully described. Its nearest ally is *P. albiflos*, Herbert in Bot. Mag. t. 2642, (*Cochliopetalum albiflos*, Beer), but this has milk-white flowers and narrower leaves, green on the underside. By Karl Koch, in his monograph of this large and intricate genus above cited, it is placed doubtfully under *P. odorata*, Regel in Gartenflora, tab. 114, (*Cochliopetalum Schuchii*, Beer), but this also is a plant with milk-white petals and leaves green on both surfaces. Its precise country is not known, and I have looked for it in vain amongst the wild specimens of *Pitcairnia* in the London herbaria. Our drawing was made from a plant that flowered in the Palm Stove at Kew in April of this present year.

DESCR. Acaulescent. *Leaves* about twenty in a dense rosette, linear-lorate, two to three feet long, an inch or an inch and a quarter broad at the middle, narrowed to the point and downwards to a channelled haft three or four lines broad, not a proper petiole, bright green on the face, white furfuraceous all over the under surface, entirely without marginal prickles. *Scape* a foot and a half long, slightly

SEPTEMBER 1ST, 1877.

floccose, bracteated by three or four reduced linear leaves. *Raceme* lax, simple, about a foot long and half a foot broad when fully expanded; most of the pedicels patent, the lower ones half or three-quarters of an inch long; bracts lanceolate, a quarter or half an inch long. *Calyx-tube* obconical, a quarter of an inch long, adnate to the ovary; segments lanceolate, naked, coriaceous, yellowish, three-quarters of an inch long. *Petals* primrose-yellow, linguulate, obtuse, two inches long, with a toothed oblong scale at the base. *Stamens and style* about as long as the petals; anthers lemon-yellow, linear, basifixed, nearly half an inch long. *Stigmas* strongly twisted spirally.—*J. G. Baker.*

Fig. 1, Petals, shewing the scale at the base, and a couple of stamens; fig. 2, pistil:—*both slightly magnified.*

N^o 1402.



Pub by L. R. W. Walworth May 1861
196 Edwards Pub. P. 1000000

PITCAIRNIA INTEGRIFOLIA. ENTIRE-LEAVED
PITCAIRNIA.

Generic Character.—Vide No. 1416.

Specific Character.

PITCAIRNIA *integrifolia*; (*flos regularis; squamiger*;) foliis pluribus, lentis, lorato-attenuatis, edentulis (*vel interdum versus basin parciſſime ac vix niſi tactui dentientibus*), a pronò pellicula lanuginòſa candicantibus; caule breviori, ſtriato tomentoſo, aſſurgenter ramoſo; racemis remotius multifloris erectis; floribus erecto-divergentibus pedicello villoſo duplo triplove breviorè; bractea ſubulato-convoluta, ſphacelata, tomentoſa, calycibus pauliſper longiorè vel breviorè; calyce villoſo, corollis duplo breviorè, imò turbinato, lanato; corolla contortim tubuloſa, rotundato-trigona, ſurfum decreſcente, anguſto ore aperta, laciniis ligulato-oblongis equalibus, ſquama baſeos ovato-oblonga, identata, parvula; ſtaminibus corollam ſubæquantibus; ſtigmatibus in lobulum exſertum ſpiraliter unitis. G.

Appears to come the neareſt to *anguſtifolia* of any known to us; but in that the leaves are ſtiff, narrow, and armed at the edge with horizontal wiſdſhly ſet ſpines or teeth, the corolla neither ſo ſlender nor ſo upright as here. In *integrifolia* the leaves are about two feet long, pliant, and narrower than thoſe of *latifolia* and *bromeliæfolia*, having an entire margin, except that now and then the younger ones, when the hand is drawn along them, may be perceived to be ſomewhat roughened at the lower edges; *ſcape* of an undulated yellow-ſcarlet colour; flowers ſcarlet, about an inch and half long; anthers ſhort, yellow.

As far as our reſearches have extended, an unrecorded ſpecies; introduced from the Weſt-Indies, by Lady AMELIA HUME, from whoſe collection we had the ſpecimen from which our drawig has been made. Requires to be kept in the bark bed of the ſtove, where it flowers about Auguſt. G.



Pitoh. del. et lith.

Prostanthera Rostk. var.

PITCAIRNIA JACKSONI.

Mr. Jackson's Pitcairnia.

Nat. Ord. BROMELIACEÆ.—HEXANDRIA MONOGYNIA.

Gen. Char. (Vide supra, TAB. 4241.)

PITCAIRNIA *Jacksoni*; foliis subulato-ensiformibus carinatis subtus albo-furfura-ceis supra medium spinoso-serratis, scapo simplici, pedicellis patentibus calycibusque farinosis, sepalis obtusis, corollæ curvatæ petalis lineari-oblongis subtortis longitudinæ staminum intus squamosis squama bifida serrata, stigmatibus ciliatis.

This very handsome *Pitcairnia* was flowered by Mr. Jackson, the eminent nurseryman of Kingston, Surrey, who imported it in a very young state, among tufts of Orchideous plants from Guatemala. Its nearest affinity is probably with *P. bromeliaefolia* (Bot. Mag. t. 824, where the differences will be at once apparent) and equally belongs to the division “petalis basi squama instructis.” Among them we find no species with which this accords, and hence we name it in compliment to Mr. Jackson. It is, as may be presumed, a stove-plant, and flowers in the summer months, making a striking appearance with its copious large scarlet flowers.

DESCR. *Root* of many tufted fibres. *Plant* throwing up many suckers from the base. *Leaves* a foot and more long, subulato-ensiform, striated, attenuated above and below, upper half only spinuloso-serrated, the rest entire, above dark green and naked, below clothed with a whitish floccose or pulverulent substance. *Scape* leafy below, pulverulent, bearing an erect raceme of handsome scarlet flowers. *Pedicels* bracteated, standing out almost horizontally and, as well as the calyx, pulverulent. *Calyx* of three, imbricated, erect sepals, about three-quarters of an inch long, red with a yellowish margin. *Corolla* scarlet, nearly three inches long, curved. *Petals* linear-oblong, not at all spreading, slightly spirally twisted: near the base within is a conspicuous, membranous, two-lobed *scale*, the lobes slightly serrated. *Stamens* as long as the petals. *Ovary* glabrous,

OCTOBER 1ST, 1850.

oblong-ovate: *style* rather longer than the stamens: *stigmas* three, ciliated. *W. J. H.*

CULT. Tropical America and the West Indian islands are the native places of the genus *Pitcairnia*. They generally inhabit dry places, where there is little or no soil. They increase by suckers, and ultimately become dense cæspitose tufts, sometimes found growing on trees. They appear able to bear a great degree of heat and drought, but in a state of cultivation they improve in appearance by allowing them a due share of moisture. This pretty species has flowered in the Orchid-house, under the influence of a moist and warm atmosphere, in which it appears to thrive. A soil composed of light loam and peat suits it. It is increased by taking off the young suckers, which root freely without the aid of a bell-glass. *J. S.*

Fig. 1. Pistil. 2. Base of a petal:—*magnified*.



PITCAIRNIA LATIFOLIA. BROAD-LEAVED
PITCAIRNIA.

Class and Order.

HEXANDRIA MONOGYNIA.

Generic Character.—*Vid. Num.* 824.

Specific Character and Synonyms.

PITCAIRNIA *latifolia* foliis subintegris, parvissime atque abrupte spinoso-dentatis; racemo confertiore; bracteis pedicellos equantibus. G.

PITCAIRNIA *latifolia*. Hort. Kew. 1. 401. Willd. Sp. Pl. 2. 10. Lil. à Redouté, t. 74. Bot. Rep. t. 322.

The definition of PITCAIRNIA *bromeliæfolia* and *latifolia* in the Hortus Kewensis is taken from the leaves, those of the former being described as having edges ciliated with spines, of the latter as being subspinose at the base only; but we have observed the radical leaves of the *bromeliæfolia* to be entirely free from spines except for one or two inches beyond the base, while those growing on the scape have been ciliated their whole length, and in the present species spines do occur, though thinly scattered, to the very extremity of the leaf. The relative difference in the length of the pedicle and bract appears to us to afford a better and a more constant character; the *bromeliæfolia* has long horizontal pedicles with bractes not half their length; in *latifolia* the bractes are at least equal to and often twice the length of the pedicles, which are short and ascendent. The name of broad-leaved can only be proper in contradistinction to the narrow-leaved species; for in *bromeliæfolia* they are even rather broader than here.

A native

A native of the West-Indies; requiring to be kept in the bark-bed of the stove.

Our drawing was made at Messrs. BRAME and WHITLEY's Nursery, Old-Brompton, in April, from a specimen with deeper coloured flowers than common; these are usually considerably paler than in the *bromeliæfolia*. Flowers more generally the latter-end of the summer.

Introduced by Mr. ALEXANDER ANDERSON, in 1785. G.



TAB. 4705.

PITCAIRNIA MACROCALYX.

Large-calyxed Pitcairnia.

Nat. Ord. BROMELIACEÆ.—HEXANDRIA MONOGYNIA.

Gen. Char. (Vide supra, TAB. 4241.)

PITCAIRNIA *macrocalyx*; foliis radicalibus longissimis lanceolatis acuminatissimis inferne longe attenuatis vaginantibus glaberrimis submembranaceis costatis inermibus caulinis sensim minoribus, caule elongate subfurfuraceo-lanato tereti, racemo laxiusculo, floribus (albis) patentibus demum reflexis, bracteis ovatis concavis acuminatis calycem longitudine quantibus, pedicellis brevissimis, calycis (flavi) ampli sepalis ovatis acuminatis appresso-conniventibus, petalis oblongo-lineari-spathulatis subtortis basi esquamosis, ovario supero.

The present is one of the many South American novelties we are accustomed to receive from the Belgian Gardens, without name or particular locality*. In no work can we find the present species described: but its nearest ally is unquestionably *Pitcairnia suaveolens* of Lindley in the ‘Botanical Register,’ tab. 1069. That has the same large, white, somewhat twisted petals, and the same-coloured calyx; but is very different in the exceedingly lax raceme, the comparatively small and narrow segments to the calyx, inferior ovary, glabrous stem, and very narrow leaves. The present has the largest calyx of any species known to us, and it is altogether a fine-looking plant. With us it flowered in a warm stove in December, 1852.

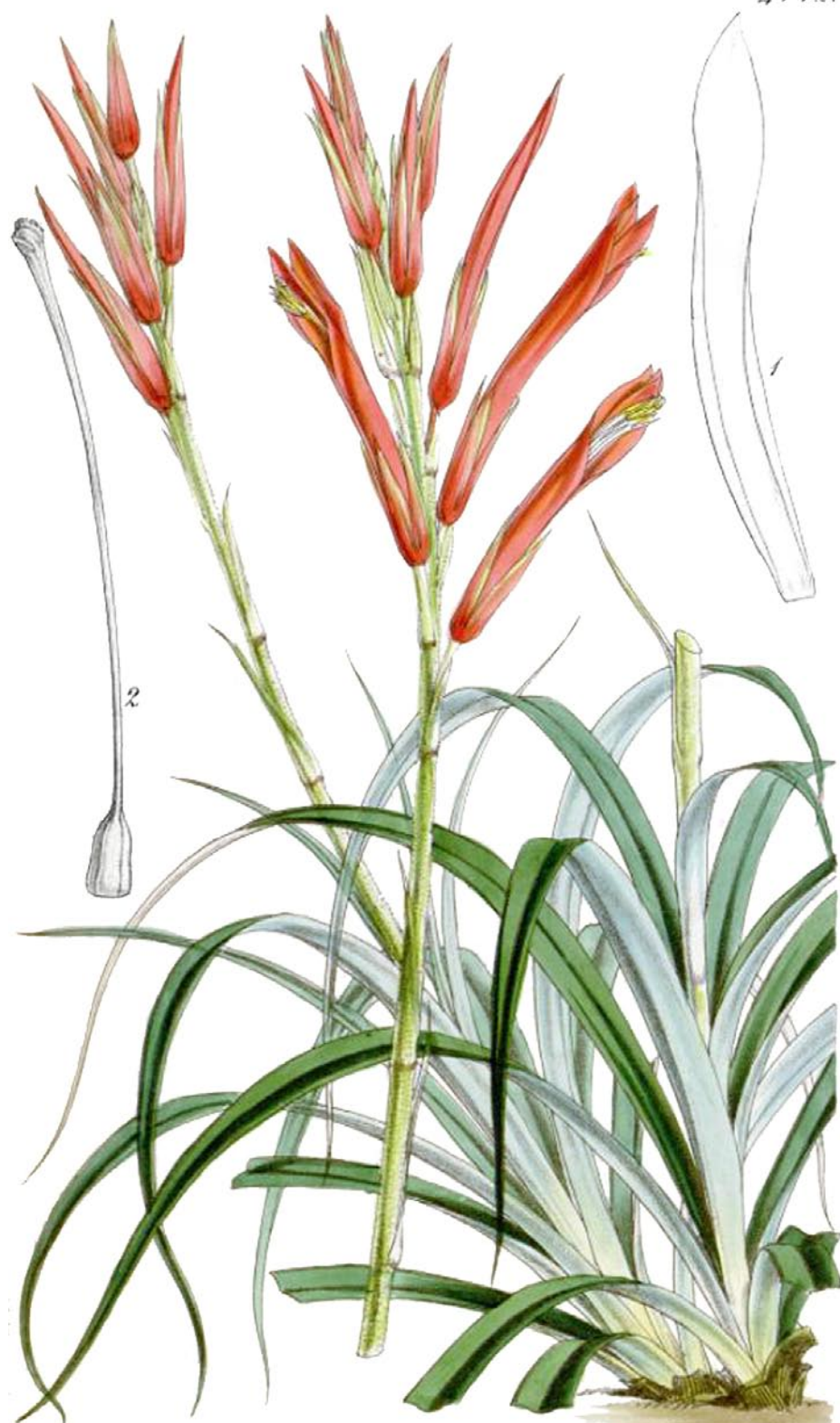
DESCR. *Root-leaves* very numerous, crowded, two to three feet long, elongato-lanceolate, tapering gradually to an exceedingly fine point, and below attenuated into a long convolute base; the texture submembranaceous, colour bright green, the margin quite entire, the surface glabrous and free from every kind of villous covering. *Stem* shorter than the leaves, terete, at the base

* The same plant, indeed, we have received from Mr. Linden under the name of “*Puya maidfolia*,” from Mexico; but the character of that, as given in Walpers’ ‘*Annales*,’ is much at variance with ours.

MARCH 1ST, 1853.

as thick as one's finger, between furfuraceous and woolly, leafy, the leaves remote, gradually smaller upwards till they pass into the bracteas of the inflorescence. *Raceme* a span long, of many large, spreading, at length reflexed flowers, rather lax, or moderately compact, bracteated. *Bracteas* membranaceous, ovate, much and finely acuminate, very concave, as long as the calyx and pedicel. *Pedicels* very short. *Calyx* large, almost an inch long, formed of three connivent yellow ovate-lanceolate *sepals*. *Petals* large, white, thrice as long as the calyx, slightly twisted and imbricated, linear-oblong, spathulate, the apex often reflexed, the sides more or less involute, the base within destitute of scale. *Stamens* six, as long as or a little longer than the petals. *Anthers* linear-oblong, yellow. *Ovary* almost entirely, if not quite superior, oblong-ovate with three furrows, tapering into the filiform white *style*, which equals the stamens in length. *Stigmas* three, green, spirally twisted.

Fig. 1. Petal. 2. Pistil :-magnified.



PITCAIRNIA MUSCOSA.

Hoary Pitcairnia.

Nat. Ord. BROMELIACEÆ.—HEXANDRIA MONOGYNIA.

Gen. Char. (Vide supra, TAB. 4241.)

PITCAIRNIA *muscosa*; foiiis linearibus recurvatis acuminatis integerrimis inferne carinatis supra demum glabris subtus cauleque folioso cinereo-tomentosis, racemo simplici, bracteis subulatis pedicellos subæquantibus, floribus approximatis rubris, calycibus coloratis, petalis subgaleatis basi nudis.

PITCAIRNIA *muscosa*. *Martius, Fl. Bras. ined. Schultes, Syst. Veg. v. 7.p. 1240.*

Received from the Imperial Gardens of St. Petersburg, under the name here retained; for it seems to be identical with that species, published in the last volume of ‘Schultes’ *Systema Vegetabilium*,’ in which case it is a native of Brazil, Serra de Piedade, Province of Minas Geraes, Brazil. It requires the heat of the stove, grows in tufts, and, being a free winter flowerer, it enlivens the shelf with its red blossoms in mid-winter, its flowering season with us being the month of December. It is perhaps the smallest species of the genus yet known in cultivation.

DESCR. Several plants grow together in a tufted manner. The *leaves* are principally radical, the longest of them nearly a span in length, linear, much and finely acuminate, quite entire, subcoriaceous, recurved, carinate in the lower half, when young all over downy, the adult ones glabrous and dark green above, below woolly, with a whitish or pale grey down or scurf. *Stem* about twice as long as the longest leaves, erect, not so thick as a writing pen, very woolly, terete, sparingly leafy, with the leaves gradually smaller, and more bracteiform upwards, so as to pass into erect *bracteas*, of which those at the base of the pedicels are about equal in length to the pedicels. *Racemes* erect, six, ten or twelve-flowered. *Pedicels* erect, a little more than half an inch long. *Flowers* erect, or nearly so, two inches long, red. *Calyx* of three lanceolate *sepals*, erect, red, tipped with green,

nearly half as long as the corolla. *Corolla* of three linear, convolute, oblique *petals*, so arranged as that the upper portions form a sort of helmet on the anthers, destitute of scale at the base within. *Stamens* six, nearly as long as the petals. *Filaments* and linear *anthers* white. *Ovary* oval, with three longitudinal furrows. *Style* as long as the *stamens*; *stigma* of three linear, spirally-twisted lobes.

Fig. Petal. 2. Pistil:—*magnified*.



TAB. 5356.

PITCAIRNIA PUNGENS.

Spinose Pitcairnia.

Nat. Ord. BROMELIACEÆ.—HEXANDRIA MONOGYNIA.

Gen. Char. *Perigonii* semisuperi sexpartiti *lacinie exteriores* calycine, basi inter se connatæ, lanceolatæ, acuminatæ, carinatæ, erectæ, *interiores* petaloideæ, longiores, inferne in tubum approximatae, apice galeatim incumbentes v. æqualiter patentes, basi intus squamosæ vel rarius nudæ. *Stamina* 6, annulo perigyno inserta; *filamenta* libera, subulata, *antheræ* lineares, basi sagittatæ. *Ovarium* semi-inferum, triloculare. *Ovula* in loculorum angulo centrali plurima, adscendentia, anatropa. *Stylus* filiformis; *stigmata* 3, linearia, spiraliter contorta. *Cap-sula* semisupera, ovato-pyramidata, trilocularis, apice septicido-trivalvis, *valvis* introrsum demum fissis. *Semina* plurima, adscendentia, teretiuscula, testa fusca scrobiculata, *chalaza* lata discolore umbilicum setiformem, *chalaza* apicali in acumen longe productæ, jungente. *Embryo* minimus, rectus, in basi albuminis dense farinosi, extremitate radiculari umbilicum attingente.—*Herbæ Americane tropicæ*, foliis *linearibus* v. *ligulatis*, sæpe *spinoso-dentatis*, *caule erecto*, *simplici*, *floribus racemosis*, *bracteatis*. *Endl.*

PITCAIRNIA *pungens*; subacaulis, foliis longe lineari-subulatis sensim attenuato-acuminatis furfuraceis integerrimis, inferioribus ad spinas elongatas pungentibus bifariam spinulosis reductis; scapo molliter furfuraceo bracteato, bracteis lineari-lanceolatis erectis, floribus spicatis, spica simplex oblonga multiflora, floribus pallide rubris, petalis lineari-spathulatis obtusis basi intus squama auctis.

PITCAIRNIA *pungens*. *H. B. et K. Nov. Gen. et Sp.* v. 1. p. 294. *Schultes, Syst. Veg.* v. 7. p. 1219.

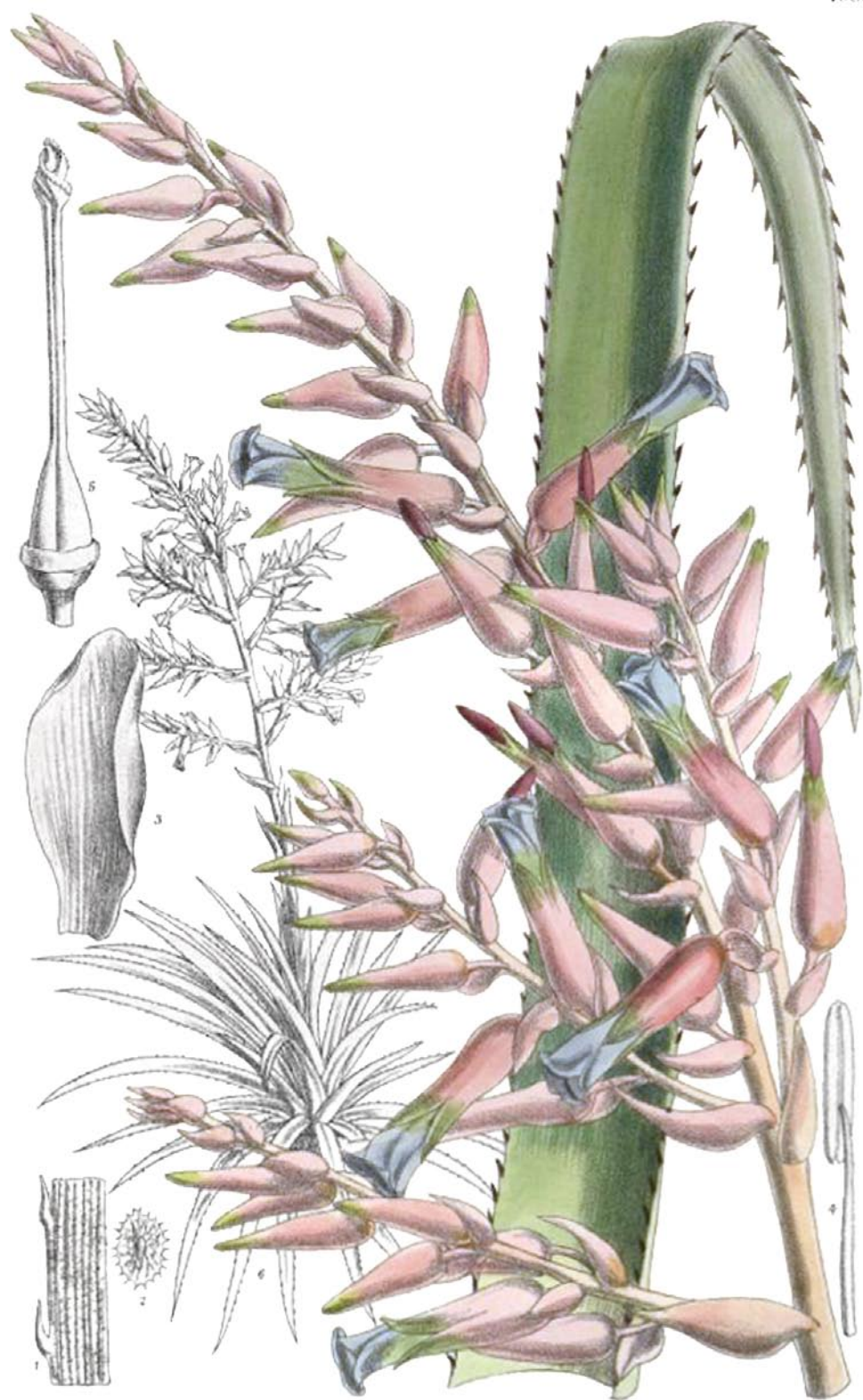
A very handsome greenhouse plant, raised by Isaac Anderson Henry, Esq., of Edinburgh, from seeds sent by Professor Jameson, of Quito. We have numerous specimens in our herbarium from various parts of the Andes of New Granada, where it appears to be common. It is very ornamental.

DESCR. *Stemonetotwo* feet high, simple, terete, leafy, pruinose, especially above; clothed below with sheathes terminating in long, sharp, slender spines, which are imperfect leaves, armed with two rows of ascending spinules. *Leaves* very numerous,

JANUARY 1ST, 1863.

sheathing, elongate-linear-subulate, a foot long, and four to six lines broad or more, furfuraeous or subtomentose below, pale green above. *Flowers* in a rather lax, linear, oblong, simple spike, sessile or shortly peduncled, linear, with narrow green bracts. Outer *perianth*-segments tripartite, nearly smooth, with oblong-lanceolate, acuminate, keeled segments; inner three times longer than the outer, linear, obtuse, furnished with an oblong scale at the base, of a pale but bright orange-red colour. *Stamens* included; *anthers* linear. *Ovary* conical, three-lobed; *style* long, slender; *stigma*, with three twisted lobes.

Fig. 1. Flower. 2. Inner segment of perianth. 3. Pistil:—*all magnified*.



M. S. del. J. H. Pach. lit.

Vincent Brooks, Day & Son, Col. 1169

L. Reeve & Co. London.

TAB. 7966.
PITCAIRNIA SPATHACEA.
Native of Argentina.

Nat. Ord. BROMELIACEÆ.—Tribe PITCAIRNIÆ.

Genus PITCAIRNIA, *L'Hérit.*; (*Benth. et Hook. f. Gen. Plant.* vol. iii. p. 665.)

PITCAIRNIA *spathacea*; acaulis, foliis patentibus vel recurvis lineari-acuminatis usque ad 16 poll. longis 1 poll. latis supra primum furfuraceis demum glabris subtus perpetuo albo-squamatis, spini sursum curvatis marginatis, pedunculis 1 ped. altis. paniculis fere 2 ped. altis, bracteis navicularibus acuminatis dilute roseis, sepalis ovatis valde acuminatis pedicello multo longioribus dilute roseis apice viridibus 1 poll. longis, petalis obovatis obtusis convolutis basi nudis obscure cæruleis $1\frac{1}{4}$ poll. longis, ovario ovoideo, stylo quam ovario triplo longiore, stigmatē brevi spiraliter contorto.

P. spathacea, Griseb. in Goett. Abh. vol. xxiv. (1879) p. 329; Baker, Handb. Bromel. p. 102.

Puya spathacea, Mez in DC. Monogr. Phan. vol. ix. p. 481.

This is one of the few species of *Pitcairnia* having petals destitute of a basal scale inside. It was discovered by Lorentz on the banks of the Rio Primero, Argentina. The date of its introduction into cultivation is not known, but the plant from which our figure was taken in February last was raised from seeds received from the Breslau Botanic Garden in 1896, and has been grown with other hard-leaved Bromeliaceæ in the Succulent House at Kew, where they grow better than in a more humid atmosphere.

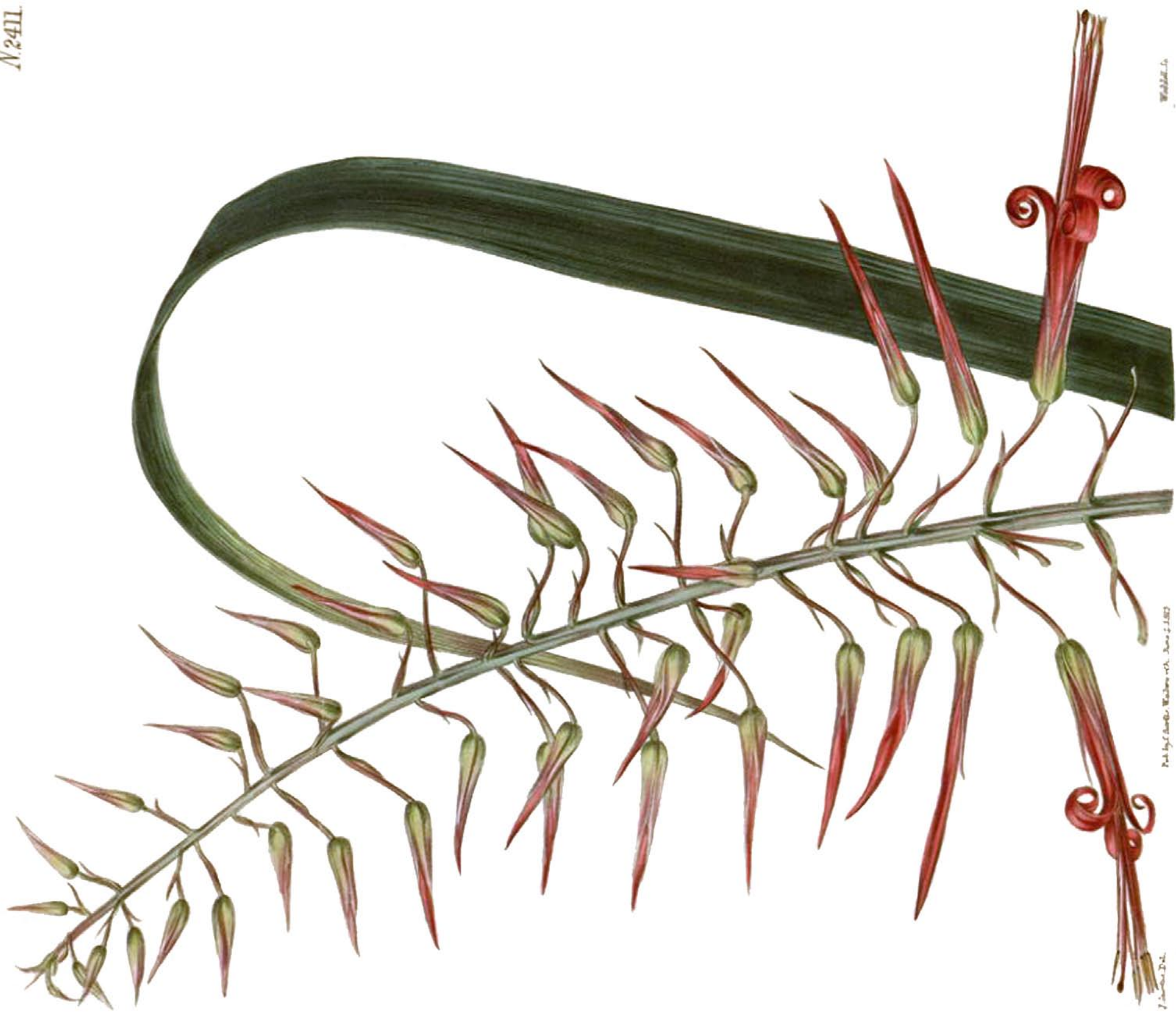
The genera *Pitcairnia* and *Puya* are very closely allied, differing chiefly in the capsule of the former being septicidal in dehiscence, and more or less adnate to the calyx, while in the latter it is loculicidal and quite free. It was probably on account of the very slight degree of union of ovary and calyx that the present species was transferred to *Puya* by Mez. About 130 species of *Pitcairnia* are known, of which about twenty have been figured in the Magazine, some of them under the name of *Puya*. *P. atrorubens*, Baker (*Puya Warscewiczii*, Wendl.—B. M. t. 5225), is a striking plant with a dense spike of pale yellow flowers subtended by large purplish-brown imbricate bracts, which again flowered at Kew last year. In other species the inflorescence is more lax, varying from a simple

JULY 1ST, 1904.

raceme in *P. Andreana*, Linden (B. M. t. 6480), to a panicle in *P. alta*, Hassk. (t. 6606); the latter species differing from *P. spathacea* in having unarmed leaves and scarlet flowers.

Descr.—A stemless plant. *Leaves* patent or the lower recurved, linear, acuminate, the largest sixteen inches long and one inch broad, at first furfuraceous on the upper surface, at length glabrous, with persistent, white scales on the lower surface; marginal spines curved upwards, and almost parallel with the leaf-margin. *Panicle* simply branched, nearly two feet high, on a peduncle one foot high; bracts boat-shaped, acuminate, pale rose. *Sepals* ovate, very acuminate, much longer than the pedicels, pale rose, green at the apex, one inch long. *Petals* obovate, obtuse, convolute, without a basal scale, dull blue, an inch and a quarter long. *Ovary* ovoid; style three times as long as the ovary; stigma short, spirally twisted.—*C. H. Wright.*

Fig. 1, leaf-margin; 2, scale from the under surface of leaf; 3, petal; 4, stamen; 5, pistil; 6, sketch of entire plant:—1 to 5 *enlarged*, 6 *reduced*.



PITCAIRNIA STAMINEA. LONG-
STAMENED PITCAIRNIA.

Class and Order.

HEXANDRIA MONOGYNIA.

Generic Character.

Cal. 3-partitus, inferus, persistens. *Petala* 3; *squama* nectarifera ad basin petalorum (nunc deficiens). *Stigmata* 3, contorta. *Caps.* 3, introrsum dehiscentes. *Semina* alata, aut utrinque in setam longam terminata.

Specific Character.

PITCAIRNIA *staminea*; foliis lineari-lanceolatis integerrimis, laciniis corollæ revolutis, staminibus corolla longioribus.

PITCAIRNIA *staminea*. *Lodd. Cab.* 773.

DESCR. *Leaves* linear lanceolate, two feet long, sharp pointed, quite entire, with a smooth margin. *Scape* rising from the centre of the leaves, four feet long, jointed, with a leaf-like bracte at each joint, smaller and smaller in ascending, terminating in a pyramidal raceme of flowers, a foot and half long. A lanceolate bracte, at the base of each peduncle, grows shorter and shorter at each flower, till it becomes very minute. *Peduncles* horizontal, alternate, one-flowered, lower ones an inch and a half long. *Calyx* 3-leaved: *leaflets* acute, erect; embracing the base of the corolla very tight, and only one-third of its length. *Petals* three, linear, two inches long, conniving into a cylindrical tube, revolute at the points only. *Stamens* six, exserted. *Filaments* nearly twice the length of the petals, into the base of which they are inserted. *Anthers* erect, linear, fixed by the base to the extremity of the filament. *Germen* superior, conical, three-sided, three-celled.

celled. *Style* the length of the stamens: *stigmas* three, spirally twisted together and revolute.

This fine plant appears to us not to have been hitherto described. It is a native of South America, whence it was sent by Sir THOMAS HARDY to Lady CAMPBELL, and given by her Ladyship to Messrs. WHITLEY, BRAMES, and MILNE, of the Fulham Nursery, in whose stove our drawing was taken, in January, 1823.



M. S. del. J. N. Pich. lith.

L. Reine & J. Y. London.

Vincenz. Bröckel, Day & Son. Lith.

TAB. 8410.

PITCAIRNIA TABULAEFORMIS.

Mexico.

Nat. Ord. BROMELIACEÆ.—Tribe PITCAIRNIEÆ.

PITCAIRNIA, *L'Hérit.; Benth. et Hook. f. Gen. Plant.* vol. iii. p. 665; *Mez in DC Monogr. Phan.* vol. ix. p. 341.

Pitcairnia tabulaeformis, *Linden, Catal.* 1862, p. 5; *E. Morren in Belg. Hortic.* 1862, p. 257, cum ic.; *Lemaire in Illustr. Hortic.* vol. ix. (1862), t. 344; *Flor. Mag.* vol. v. t. 297; *Baker, Handb. Bromel.* p. 109; *Mez in DC. Monogr. Phan.* vol. ix. p. 447; species *P. heterophyllae*, Beer, affinis, quae foliis heteromorphis, exterioribus a basi late ovato subulatis 5 cm. longis marginibus spinosis, interioribus linearibus inermibus recedit.

Herba subcaulis. *Folia* rosulata, patentia, sublanceolata, acuta, 12 cm. longa, 3 cm. lata, superiora sensim minora, glabra, supra pseudovelutina, integerrima, undulata, anguste albomarginata, translucentia, nervis pluribus tenuibus praedita. *Inflorescentia* ante anthesin strobiliformis, demum breviter racemosa, multiflora; bracteae ovatae, virides; bracteolae oblongae, 2·5 cm. longae, lacteae, apice rubro-tinctae. *Sepala* 1·7 cm. longa, oblonga, acuminata, obscure lactea. *Petala* 5 cm. longa, lineari-ligulata, basi squamulata, aurantiaca. *Stamina* inclusa, antheris sub-agittatis. *Ovarium* conicum, trigonum; stylus breviter exsertus; stigma trilobum, spiraliter contortum.—C. H. WRIGHT.

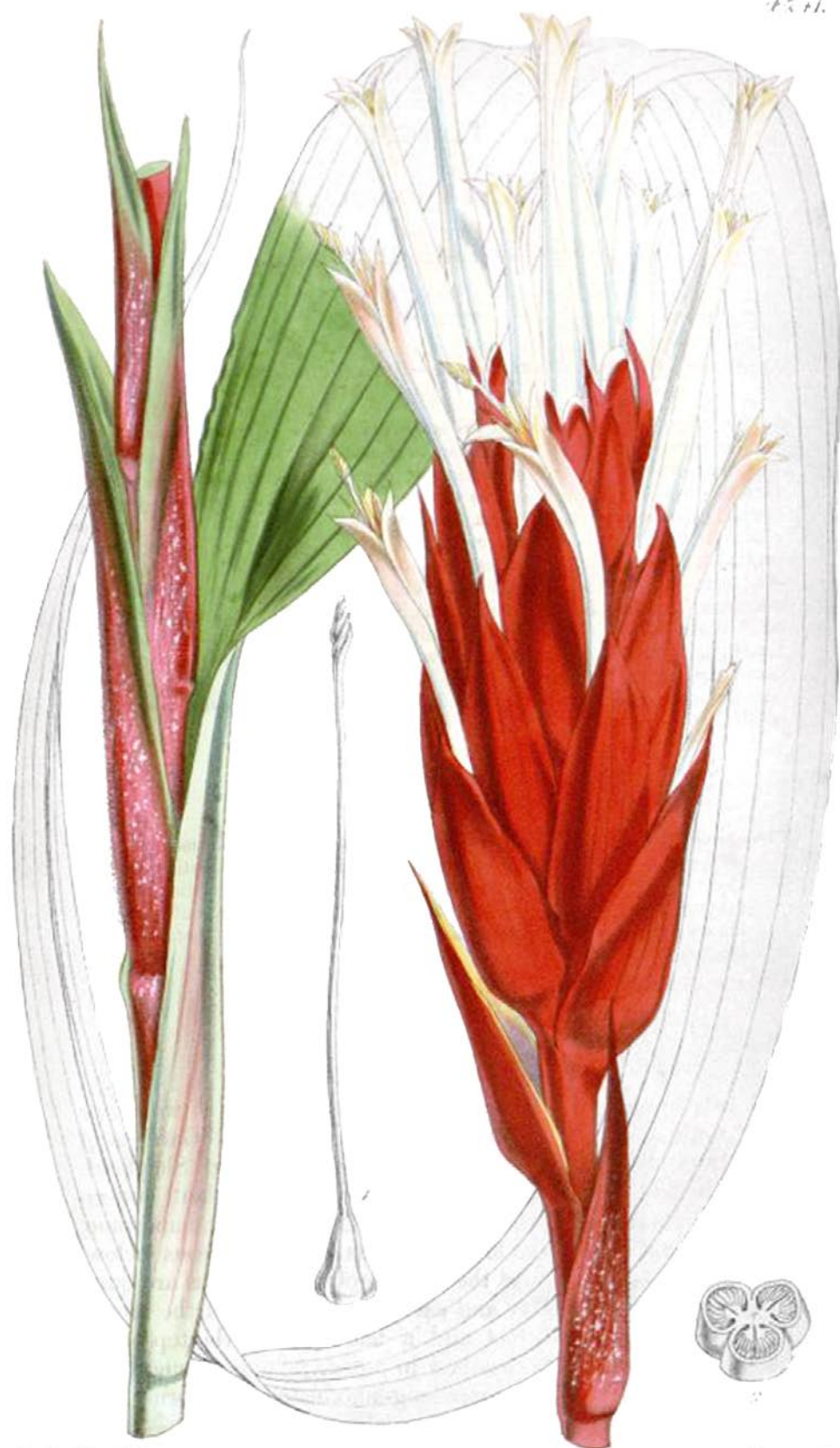
The *Pitcairnia* here figured is one of the most distinct and decorative members of the genus. It is now an old garden plant; it was first exhibited by Mr. Linden in 1861 or 1862; his plants had been sent from Chiapas in Mexico by Mr. Ghiesbreght. *P. tabulaeformis* differs from every other known species except *P. heterophylla*, Beer, figured at t. 4591 of this work under the name *P. exscapa*, Hook. f., in having a congested somewhat capitate inflorescence. But our species is readily distinguished from *P. heterophylla*, which has dimorphic leaves, the inner being linear and grass-like, the outer much shorter and densely spiny along the margins, by having leaves that are uniform and devoid of marginal spines. The petals in our plant are spirally twisted, but in such a manner as to reach different levels and so to impart to the flower a zygomorphic appearance. In cultivation *P. tabulaeformis* is easy of management; it does well when grown under tropical conditions in a peaty soil with abundant supply of moisture. It ripens seed freely

DECEMBER, 1911.

and plants raised in this way reach a flowering condition in about two years; it may also be propagated by offsets which develop round the base of the plant after it has flowered. Our figure has been prepared from a plant which blossomed at Kew in June 1910.

DESCRIPTION.—*Herb*, almost stemless. *Leaves* rosulate, spreading, oblanceolate, acute, 4–5 in. long, $1-1\frac{1}{4}$ in. wide, gradually smaller upwards, glabrous, margin undulate but quite entire, with a narrow white border; nerves numerous, very slender. *Inflorescence* at first cone-like, at length shortly racemose, many-flowered; bracts green, ovate; bracteoles oblong, milky white or pale yellow, their tips tinged with red, about 1 in. long. *Sepals* $\frac{2}{3}$ in. long, oblong, acuminate, yellowish-white. *Petals* 2 in. long, linear ligulate, bright orange, with basal scales. *Stamens* shortly included; anthers somewhat sagittate. *Ovary* conical, trigonous; style shortly exserted; stigma 3-lobed, spirally twisted.

Fig. 1, petal and stamen ; 2, anther; 3, pistil :-all enlarged.



TAB. 4241.

PITCAIRNIA UNDULATIFOLIA

Broad waved-leaved Pitcairnia.

Nat. Ord. BROMELIACEÆ.—HEXANDRIA MONOGYNIA.

Gen. Char. *Perigonii* semisuperi sexpartiti *lacinia* exteriores calycinae, basi inter se connatae, lanceolatae, acuminatae, carinatae, erectae, interiores petaloideae, longiores, inferne in tubum approximatae, apice galeatim incumbentes v. æqualiter patentes, basi intus squamosa v. rarius nudae. *Stamina* 6, annulo perigyno inserta; *filamenta* libera, subulata, *antherae* lineares, basi sagittatae. *Ovarium* seminiferum triloculare. *Ovula* in loculorum angulo centrali plurima, adscendentia, anatropa. *Stylus* filiformis, *stigmata* 3 linearia, spiraliter contorta. *Capsula* semisupera, ovato-pyramidata, trilocularis, apice septicido-trivalvis, valvis introrsum demum fissis. *Semina* plurima, adscendentia, teretiuscula, testa fusca scrobiculata, *chalaza* late discolore umbilicum setiformem *chalazae* apicali in acumen longe productae jungente. *Embryo* minimus rectus in basi *albuminis* dense farinosi, extremitate radiculari *umbilicum* attingente, infera.—Herbæ *Americanae tropicae, foliis linearibus v. ligulatis saepe spinoso-dentatis, caule erecto, simplicibus, floribus racemosis, bracteatis. Endl.*

PITCAIRNIA *undulatifolia*; foliis lato-ensiformibus acuminatissimis membranaceis striatis inermibus glabris hic illic margine undulatis, basi vaginantibus distiche insertis, pedunculo breviusculo vaginato, bracteis lato-lanceolatis convolutis purpuraceis coloratis, spica simplici strobiliformi, bracteis unifloris ovato-lanceolatis subconvolutis glabris, calyce bractea brevior, petalis (albis) longissime exsertis.

PITCAIRNIA, undulatifolia. *Hortul.*

A native, probably, of Brazil, but of the history of which we know nothing, save that it was sent to the Royal Gardens of Kew from Liverpool, by our obliging friend Mr. Shepherd, under the name here adopted. It is a very showy plant, and no stove collection should be without it. The leaves are handsome, and of a light green, the lower bractees are furfuraceous below, red tipped with green, and the long, protruded corollas are quite white. It flowers in May and easily bears parting at the root.

DESC. *Plant* about a foot and a half high to the top of the spike. *Stem* rounded, sheathed in a dichotomous manner with the bases of the leaves. *Leaves* long-lanceolate or reniform, thin, membranaceous, striated, entire, glabrous, very much acumi-

JULY 1ST, 1846.

nated, the margin sometimes a little waved, especially near the base, everywhere unarmed. The *stem* runs up into a bracteated flower-disk: *bracteas* sheathing, long, acuminate, red and furfuraceous below, green and glabrous towards the apex. *Spike* oblong, strobiliform. Its *bracteas* large, scarlet, imbricated, ovate, acute, each sheathing the base of a flower. *Calyx* almost entirely inferior, conical, elongated, of three imbricating coloured lanceolate convolute pieces or sepals, an inch or more long, but quite concealed by the bractea of the spike. *Corolla* very long, of three white almost linear *petals*, with no scale at the base within. *Stamens* as long as the petals. *Style* longer than the stamens. *Stigma* spirally twisted.

Fig. 1. Pistil. 2. Transverse section of the ovary:—*magnified*.



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TAB. 6535.

PITCAIRNIA ZEIFOLIA.

Native of Central America.

Nat. Ord. BROMELIACÆ.—Tribe PITCAIRNIEÆ.

Genus PITCAIRNIA, *L'Hérit.*; (*K. Koch in Walp. Ann.* vol. vi. p. 78.)

PITCAIRNIA (*Lamproconus*) *zeifolia*; foliis basalibus 5–6 rosulatis longe petiolatis inermibus lanceolatis chartaceis 2–3-pedalibus utrinque viridibus e medio ad apicem et basin angustatis, pedunculo elongate foliis pluribus reductis vaginantibus acuminatis prædito, floribus pluribus ascendentibus laxè subspicatis, pedicellis crassis brevissimis, bracteis ovatis rubris calyce subæquilongis, calycis oblongis segmentis oblongis obtusis valde imbricatis viridibus glabris, petalis albidis lingulatis obtusis calyce subtriplo longioribus basi haud appendiculatis, genitalibus petalis subæquilongis, seminibus utrinque conspicue candatis.

P. zeifolia, *K. Koch in Ind. Sem. Hort. Berol.* 1854, *App.* p. 11; *Walp. Ann.* vol. vi. p. 80.

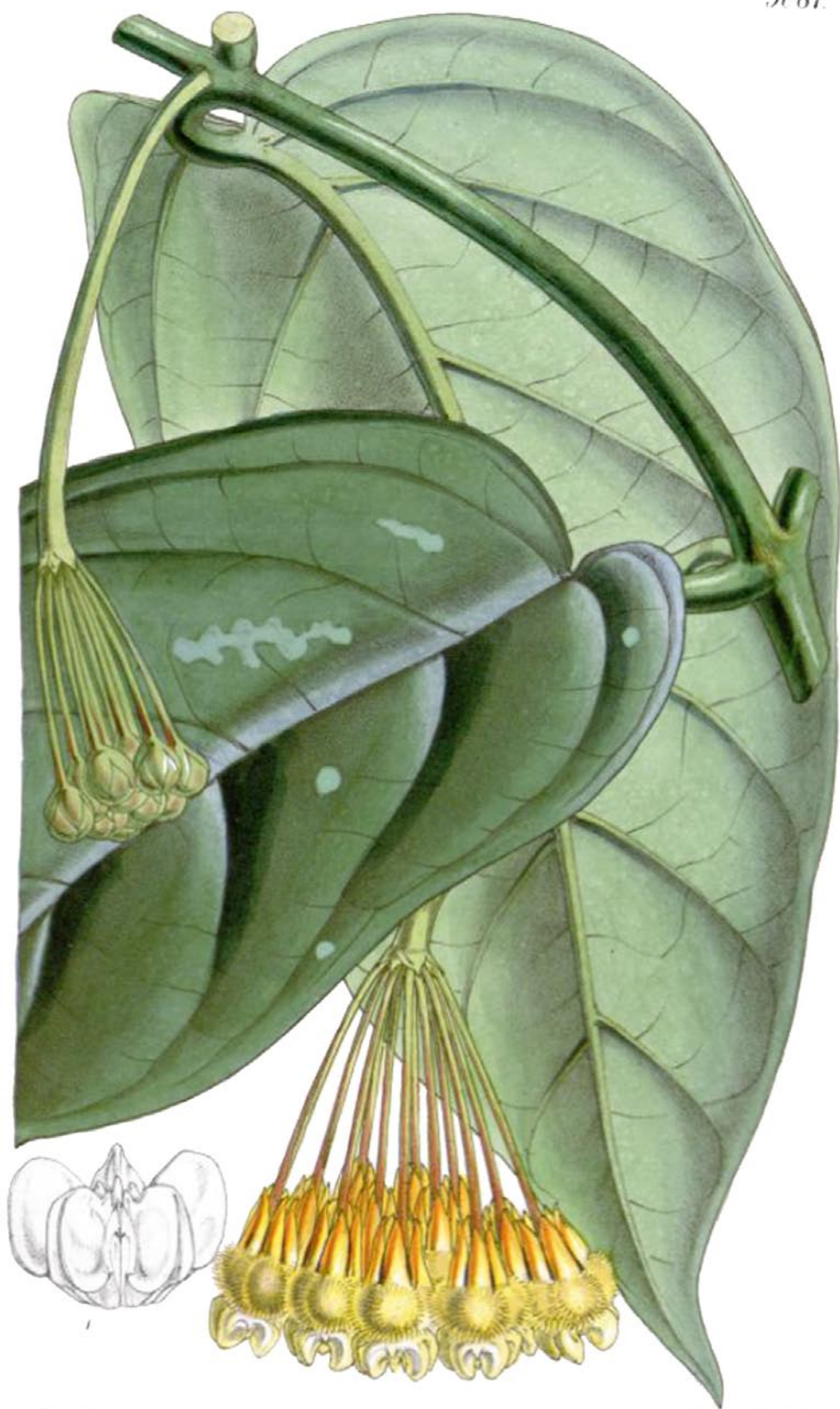
This is one of the small number of Pitcairnias from Central America, with broad petioled leaves, large sessile flowers, large clasping bracts, and seeds conspicuously tailed at both ends, which make up the section *Lamproconus*, published as a genus by Lemaire. Its nearest ally is the New Granadan *P. Funkiana* of A. Dietrich, which was figured under the name of *P. macrocalyx*, at tab. 4705 of the BOTANICAL MAGAZINE. The present plant, although it has been known for a quarter of a century, has not been figured previously. It was discovered by Warcewicz in Guatemala, and we have a fine specimen in the Kew Herbarium, gathered by Purdie in the province of Santa Martha in New Granada, about 1845. Our drawing was made from a plant sent by Dr. Regel, which flowered in the Palm House at Kew in December, 1879.

DESCR. *Leaves* five or six to a basal rosette; petiole reaching the length of a foot, channelled, quite unarmed; lamina lanceolate, two or three feet long, two or two and a half inches broad at the middle, papery in texture, green

JANUARY 1ST, 1881.

on both sides, almost entirely destitute of lepidote scales, narrowed gradually to both ends. *Peduncle* one or two feet long, sheathed by numerous reduced lanceolate leaves with long free tips. *Flowers* a dozen or more in a multifarious rather lax subspicate raceme; pedicels very short and stout; bracts bright red, ovate, about as long as the calyx, which they clasp and conceal. Calyx oblong, an inch long, green, naked; segments oblong, obtuse, much imbricated. *Petals* greenish-white, lingulate, obtuse, about three times as long as the calyx, not scaled at the base. *Stamens* inserted at the base of the petals; anther linear, yellow. *Ovary* adnate to the calyx only at the very base; style filiform, reaching to the tip of the petals; stigmas spirally twisted. *Capsule* as long as the calyx. *Seeds* very numerous, minute, with a tail an eighth of an inch long at each end.—*J. G. Baker.*

Fig. 1, apex of a stamen, *magnified*; 2, the pistil, complete, *natural size*; 3, horizontal section of the ovary.



PLOCOSTEMMA LASIANTHUM.

Woolly-flowered Plocostemma.

Nat. Ord. ASCLEPIADEÆ.—PENTANDRIA DIGYNIA.

Gen. Char. PLOCOSTEMMA, *Bl.* *Calyx* quinquepartitus. *Corolla* quinquefida, patens v. reflexa, intus ad basin stuposa. *Corona staminea* pentaphylla, gynostegio subsessili adnata; *foliolis* carnosis, erectis, compressis, subtus conduplicatis, angulo interiore in dentem antheræ incumbentem producto. *Antheræ* membrana stigmati incumbente terminatæ. *Pollinia* basi affixa, erecta, oblonga, compressa, hinc marginata. *Stigma* apiculatum. *Folliculi* . . .—Frutices *Archipelagi Indici*, *volubiles*; foliis oppositis, coriaceis, subvenosis, glabris; umbellis pedunculatis, terminalibus v. interpetiolaribus, multifloris. *Bl.*

PLOCOSTEMMA lasianthum; foliis ovalibus breviter cuspidato-acuminatis venosis, umbellis longe pedunculatis pendentibus, corolla reflexa intus ad basin dense stuposa.

PLOCOSTEMMA lasianthum. *Blume in Rumphia*, v. 4. p. 30; *Mus. Bot. Lugd.-Bat.* v. 1. p. 60. f. 14.

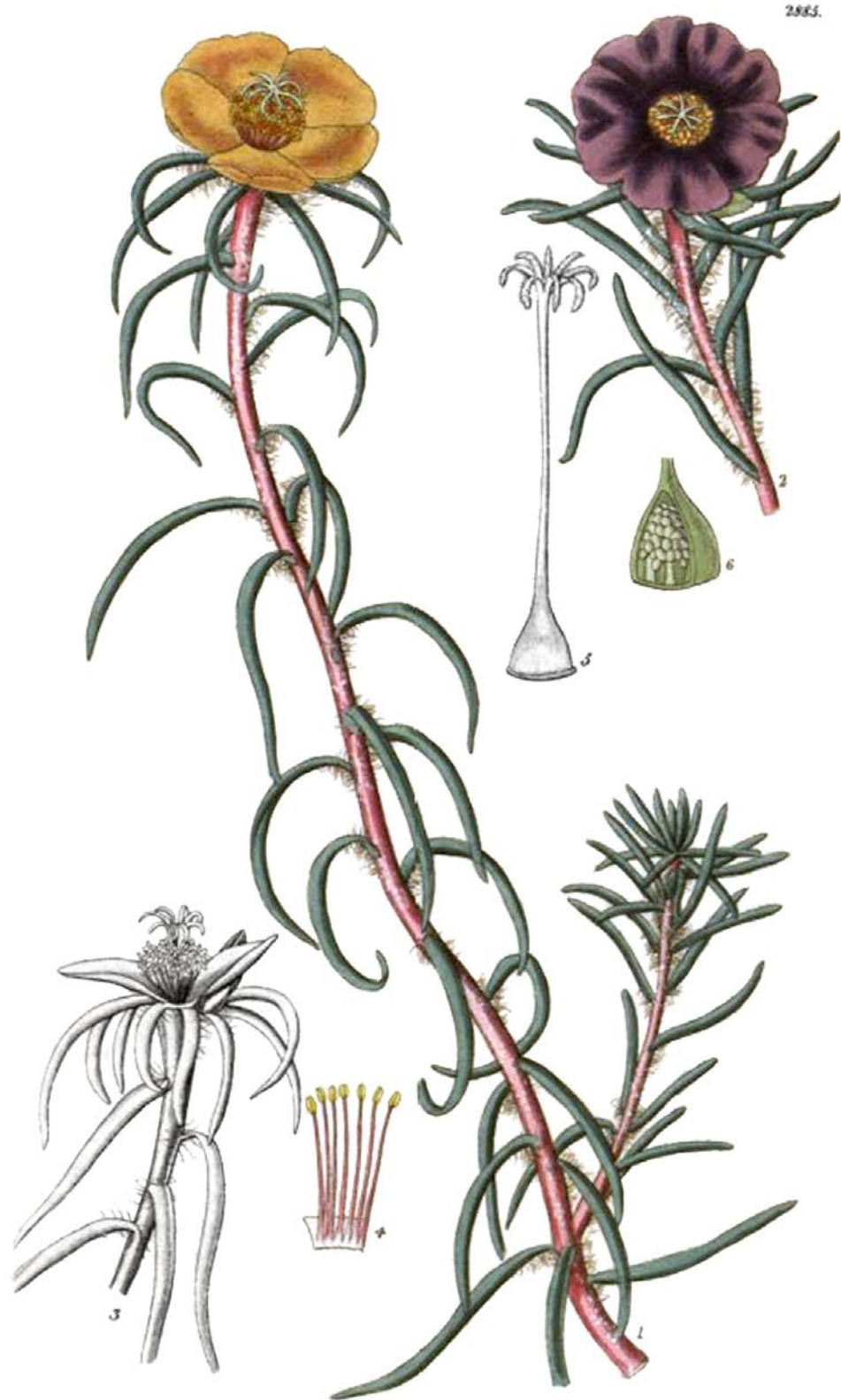
HOYA lasiantha. *Herb. Korthals. (Blume)*.

We are favoured with this remarkable Asclepiadeous plant by Mr. Low, of the Clapton Nursery, who imported it from Borneo. It proves to be a genus of the family allied to *Hoya* which Professor Blume has lately established in his 'Rumphia,' and figured in his valuable 'Museum Botanicum Lugduno-Batavorum,' differing from *Hoya*, but having the foliola of the staminal crown erect, compressed, conduplicate beneath, and the corolla at the base within densely woolly. The author characterizes two species, both natives of the Malay Islands; the present one peculiar, as far as yet known, to Borneo. It flowers with us in July.

DESCR. A long-stemmed, climbing *shrub*, with quite the habit of a *Hoya*; the *branches* terete, dark-green, glabrous, as in every part of the plant, save the corolla. *Leaves* opposite, petiolate, a span long, oval, or rather ovate, subcordate at the base, apiculato-acuminate, thick, fleshy, dark-green, especially above, with occasionally a few pale blotches, veined; principal veins very distinct in the recent leaf. *Petiole* about an inch long, terete. *Peduncle*

interpetiolarly in our specimen, long, pendent, thickened and dilated at the apex, where it bears an *umbel* or rather a *fascicle* of a considerable number of *flowers*, all hanging downwards, of a tawny-orange colour. *Calyx* small, five-lobed. *Corolla* rotate, of five ovate segments, which segments are strongly reflexed upon the pedicel, and the margins are recurved; the disc of the corolla cushioned, as it were, with a dense cottony mass, mixed with patent hairs. *Staminal crown* singularly large and as described above.

Fig. 1. Staminal crown, *magnified*.



PORTULACA GRANDIFLORA. LARGE-FLOW-
ERED PURSLANE.

Class and Order.

ICOSANDRIA MONOGYNIA.

(Nat. Ord.—PORTULACEÆ.)

Generic Character.

Cal. aut liber aut imo ovario adhærens, bipartitus, demum basi eircumscissus et deciduus. *Pet.* 4—6, æqualia, inter se libera aut ima basi concreta, calyci inserta. *Stam.* 8—15 (v. plura,) filamentis liberis interdum ima corolla adnatis. *Ovarium* subrotundum. *Stylus* 1, apice 5—6- (9-) fidus, aut stylus nullus et stigmata 3—8 elongata. *Capsula* subglobosa, 1-ocularis, medio eircumscissa. *Semina* plurima placentæ (v. placentis tot stigmata) centrali affixa. *D.C.*

Specific Character and Synonyms.

PORTULACA * *grandiflora*; caulibus diffusis ramosis, folis cylindraceis acutis, axillis pilosis, floribus terminalibus congestis, petalis calyce longioribus.

DESCR. *Root* tuberous. *Stems* diffuse, branched, six to eight inches long, rounded, smooth, succulent, reddish. *Leaves* scattered, rather remote, an inch or an inch and a half long, cylindrical or terete, acute, sessile, or with a very imperfect contraction at the base, which may be considered a sort of petiole, fleshy, glaucous green, glabrous; the axils alone have numerous long, entangled, white (deciduous?) hairs. *Flowers* terminal, three or four in a cluster, sessile upon the top of a branch, and surrounded
by

* An ancient Latin word applied to the Purslane, of very doubtful origin. Some say from *portulaca*, a little door, because the leaves resemble a little door.

by a kind of involucre, whose leaflets resemble the cauline leaves, and are plentifully interspersed with hairs at the base. *Calyx* diphyllous, spreading, *leaflets* ovate, green, at length scariose, hairy at the point of insertion. *Corolla* large, showy, considerably longer than the calyx, orange colored, or of a very bright reddish purple. *Petals* five, united at the base, and apparently incorporated with the base of the calyx at the point of insertion of the germen. *Stamens* united with the base of the calyx and corolla, and in a slight degree with each other, numerous: *Filaments* deep, blackish purple. *Anthers* rounded, two-celled, purplish: *pollen* bright yellow. *Pistil*: *Germen* superior, conical, including several upright *receptacles*, to which the seeds are attached: *Style* as long as the stamens, filiform: *Stigma* of seven to nine filiform, pubescent, at length recurved rays.

Professor DE CANDOLLE justly observes, that the Genus PORTULACA is a very heterogeneous one; and its characters are certainly but imperfectly understood. I am happy, therefore, in having the opportunity of giving an analysis of what I cannot but think a new species of the Genus, and one, the beauty of whose flowers must render it a desirable inhabitant of the cool stove or greenhouse.

It was discovered by Dr. GILLIES, growing in light sandy soil, in various situations between the Rio del Saladillo, or Western boundary of the Pampas, and the foot of the mountains near Mendoza. On the Western side of Rio Desaguadero plants were in great profusion, giving to the ground over which they were spread a rich purple hue, here and there marked with spots of an orange colour from the orange-coloured variety which grew intermixed with the others.

It has some affinity with *P. pilosa*, (Bot. Reg. t. 792) but differs in the greater length of its leaves and vastly larger size of the flowers. The colour of these flowers we find to vary to that degree, that it must afford a very deceitful character for the grouping of the species of the Genus *P. teretifolia* and *P. lanuginosa* will also rank very near our plant, but the latter is described as having small flowers, and the former, many ovate, acute, diaphanous bracteæ. at the base of the flowers.

Fig. 1. Orange-flowered state of the plant. 2. Purple-flowered ditto. S. Extremity of a Flowering Branch, from which the corolla is removed. 4. Portion of the Stamens. 5. Pistil. 6. Section of the Germen.—All but fig. 1. and 2 more or less *magnified*.



PUYA ALTENSTEINII; var. GIGANTEA.

Altenstein's Puya; gigantic variety.

Nat. Ord. BROMELIACEÆ.—HEXANDRIA MONOGYNIA.

Gen. Char. Perigonii liberi sexpartiti laciniae exteriores calycinae, æquales, subconvolutæ, interiores petaloideæ, inferne convolutæ, apice patentim reflexæ marcescendo spiraliter convolutæ. Stamina 6 hypogyna; filamenta subulata, antheræ incumbentes, lineares, basi emarginatæ. Ovarium liberum, trigonum, triloculare. Ovula plurima, in loculorum angulo centrali biseriata, horizontalia, anatropa. Stylus filiformis; stigmata 3, linearia, spiraliter contorta. Capsula cartilaginea, pyramidato-trigona, trilocularis, loculicido-trivalvis. Semina plurima, compressa, hinc anguste membranaceo-marginata.—Herbæ in America tropica et australi extratropica monticolæ, caule simplici interdum subarboreo folioso, foliis angustis spinosis, spicis bracteatis solitariis v. paniculatis. Endl.

PUYA *Altensteinii*; caule brevi erecto, foliis inermibus distichis angustis longissimis arcuato-pendulis acuminatis nervosis integerrimis aridis margine undulatis in petiolo conduplicato-equitantia attenuatis, spica solitaria pedunculata strobiliformi, bracteis inferioribus foliaceis lanceolato-acuminatis basi semi-amplexantibus superioribus amœne puniceis oblongo-acutis concavis enerviis sessilibus erectis, floribus sessilibus candidis longe exsertis, foliolis perianthii versus apicem ochraceis, staminibus æquilongis.

PUYA *Altensteinii*. Link, *Kl. et Otto, Ic. Pl. Rar. Berol.* v. 1. t. 1.

PITCAIRNIA *undulatifolia*. Hortulan. Hook. *Bot. Mag.* t. 4241.

β. *gigantea*; 5–6 -pedalis, foliis spica triplo majoribus.

Some time ago, we received at the Royal Gardens of Kew a plant, under the name of "*Pitcairnia undulatifolia*," which was published at Tab. 4241 of the present work. The same was afterwards sent from Berlin under the name of *Puya Altensteinii**: those two plants were identical, and our figure above quoted represents as accurately the one as the other. In the spring of the present year, 1847, we were astonished by the splendour of a plant, liberally presented to the Gardens by Messrs. Lucombe, Pince, and Co., of the Exeter Nursery, of so

* Let it be observed, too, that the figure, in Link, Klotzsch, and Otto's 'Icones' above quoted, is as dwarfish as, and in every respect resembles, the Bot. Mag. representation of *Pitcairnia undulatifolia*.

gigantic a size, with such large leaves and such a massy spike of flowers, with innumerable richly-coloured bracteas, that positively neither I nor those who first saw it with me, could recognize it as the *Pitcairnia undulatifolia* of Bot. Mag., or the *Puya Altensteinii* of the Prussian botanists. Yet a rigid comparison has satisfied me that they are the same, and there is no reason to doubt that, whoever will give the plant plenty of heat, light, moisture, and pot-room, may have it growing in the like perfection with Messrs. Lucombe and Pince. Any one can now assure himself, by looking at the accompanying figure, that I ought not to be satisfied with representing the small state alone of the plant, with the observation that it is a very showy species, and no collection should be without it. The var. *gigantea* is truly magnificent: its flowering season has hitherto been February and March; when one such specimen (standing as it does five feet high from the ground) gives effect to a large portion of a stove.

The description, given under *P. undulatiolia*, tab. 4241, will suffice for the present species.



TAB. 4715.

PUYA CHILENSIS.

Chilian Puya.

Nat. Ord. BROMELIACEÆ.—HEXANDRIA MONOGYNIA.

Gen. Char. (Vide supra, TAB. 4309.)

PUYA *Chilensis*; caule elato erecto crasso cicatricato parce ramoso, ramis crassis tortuoso-deflexis, foliis 3–4-pedalibus e basi dilatata elongato-ensiformibus rigidis glaucescentibus subtus minute albo-furfuraceis canaliculatis sensim acuminatissimis grosse spinosis spinis subulatis uncinatis, pedunculo terminali elongato columnari bracteato, spica ampla composita multibracteata multiflora, bracteis pubescenti-hirsutis, floribus plerisque sessilibus, sepalis tribus lanceolatis, petalis flavis calyce quadruplo majoribus oblongo-ovatis acutis erecto-patentibus, staminibus pistilloque corolla brevioribus.

PUYA *Chilensis*. *Molina, Hist. Chil. p.* 170. *Schultes, Syst. Veget. v. 7. p.* 1235.

PUYA *suberosa*. *Molina, l. c. p.* 153.

POURRETIA *coarctata*. *Ruiz et Pav. Fl. Per. v. 3. p.* 34. *Syst. v. 1. p.* 81.

PITCAIRNIA *coarctata*. *Pers. Syn. Pl. v. 1. p.* 344.

RENEALMIA *ramosa lutea*. *Feuil. v. 3. p.* 59. *t.* 39.

This is one of the most striking of our Bromeliaceous plants, cultivated in a cool stove of the Royal Gardens of Kew. It was presented to us, a young plant, by the late A. B. Lambert, Esq., who had received it direct from North Chili, brought home by Mrs. Maria Graham, afterwards Lady Calcott. The stem, or caudex, has now attained a height of four feet, independent of the leaves, which are from three to four feet in length, spreading in all directions; the lower ones being reflexed. These leaves would render the plant admirably suited to the formation of fences, in the nature of the spinous margins; for the upper half of the leaf has all the spines directed forward towards the apex, presenting a great obstacle to intrusion of man or beast in that direction, whilst those lower down the leaf (longer and stronger too) have their curvature downwards, so that if man or animal is so bold as to make his way partially through, the decurved spines would prevent his retracing his steps with impunity.

MAY 1ST, 1853

The compound spike of flowers upon the column-like perfectly straight peduncle is remarkable for its size; the large full yellow (but inclining to green) flowers and the copious bracteas turning brown or black in age. We can only represent a small portion of the flowering head in our Plate of the natural size. This plant is called *Cardon* and *Puya* in Chili, where the soft substance of the stem is used for corks and bungs: the flowers yield a remedy for hernia, and the Indians use the spines of the leaves for fishhooks.

DESCR. *Stem*, or *caudex*, four feet high, flexuose, twelve inches in circumference, and nearly of the same size throughout: our plant bears two nearly opposite branches; these are nearly of the same size as the stem, horizontal or deflexed, and flexuose or rather tortuose, and the whole stem and branches are cicatrized with the scars of the fallen leaves, or scaly with the bases that yet remain of the leaves. *Leaves* in tufts at the apex of the main stem and branches, two to three, rarely four feet long, spreading in all directions; the lower ones recurved; all of them from a broad sheathing base, sword-shaped or linear-subulate, gradually tapering into a long narrow point, canaliculate, glaucous, minutely and compactly furfuraceous beneath, and almost white, the margins rather distantly beset with strong curved or uncinat subulate spines; those in the superior half of the leaf invariably pointing upwards: those in the lower half pointing downwards, except at the very base near the point of attachment, where they are irregular. From the apex of the main stem a column-like *peduncle* arises, quite straight, four feet and a half long, four inches in circumference, hoary with furfuraceous down, and beset with many deflexed, rather large, ovate, hoary, long-pointed bracts, eventually turning black, leafy below. *Spike* terminal, compound or subpaniculate, throwing out side branches, whose lower flowers are more or less pedicellate, many-flowered, copiously bracteated; *bracteas* ovate, acuminate, pale green, downy, black in age, at first imbricated over the flower-buds, then spreading. *Flowers* large, mostly sessile. *Sepals* three, erecto-appressed, lanceolate, more or less acuminate, greenish, downy externally. *Petals* slightly twisted, obovato-oblong, four times larger than the sepals, deep greenish or sulphur-yellow, with a depression, but no scale, at the base within. *Stamens* six, erect, shorter than the petals. *Anthers* oblong-sagittate, yellow. *Ovary* oblong-ovate, three-furrowed, free. *Style* rather thick, as long as the stamens. *Stigma* trifid, slightly twisted.

TAB. 5234.

PUYA GRANDIFLORA.

Large-flowered Puya.

Nat. Ord. BROMELIACEÆ.—HEXANDRIA MONOGYNIA.

Gen. Char. (Vide supra, TAB. 4991.)

PUYA *grandiflora*; caule subelongato robusto cicatricato, foliis numerosissimis e lata basi lingulato-subulatis coriaceo-firmis canaliculatis supra viridibus subtus canescentibus marginibus grosse atro-spinosis, spinis subulatis, carina etiam spinosa, pedunculo elato, panicula elongata pluriflora laxa, ramis calycibus bracteisque extus dense ferrugineo-pannosis, petalis basi intus bisquamatis albo-virescentibus 4–5-uncialibus sepalisque falcato-decurvis.

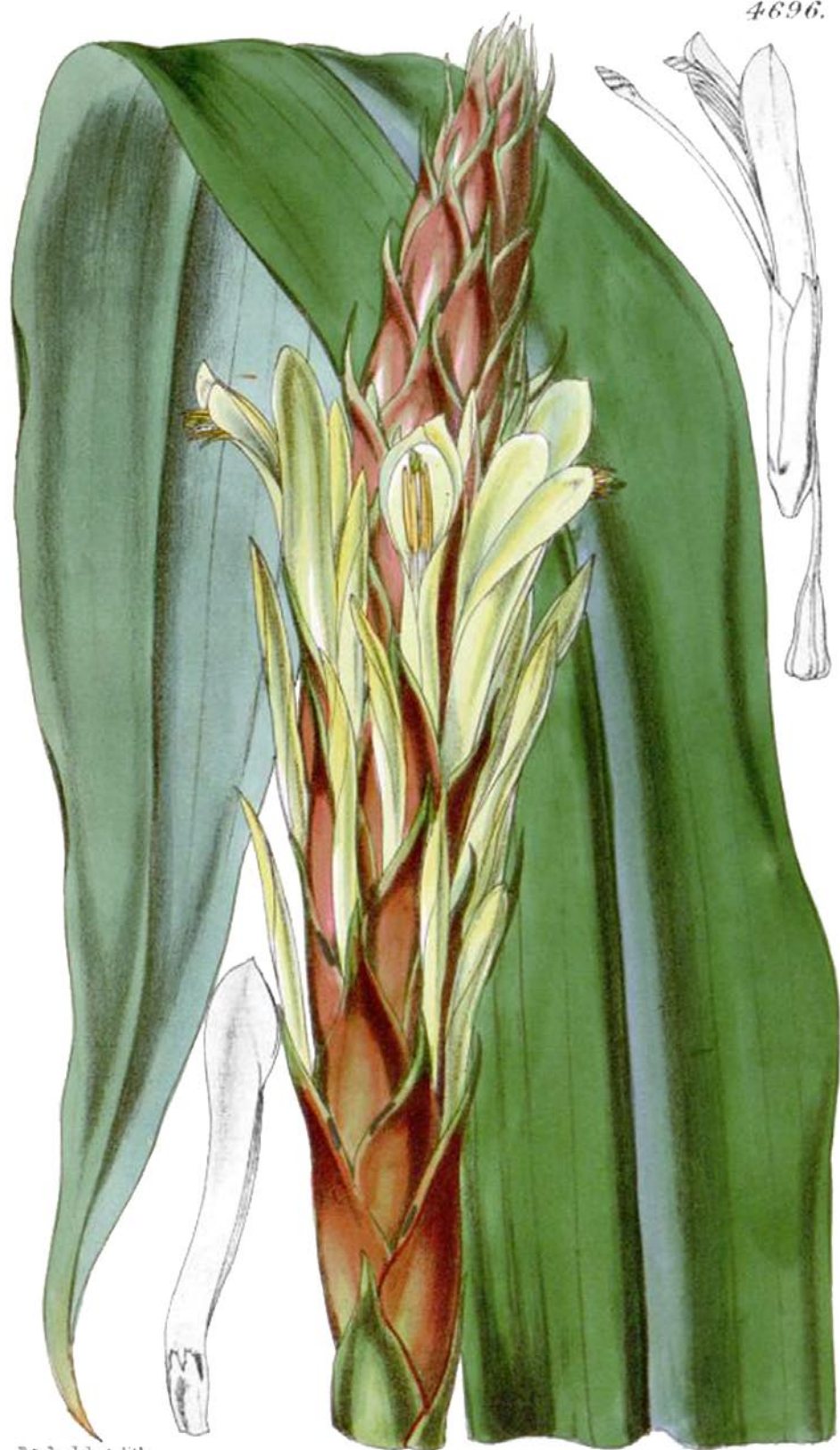
This is certainly among the most striking among Bromeliaceous plants. We received it many years ago, at the Royal Gardens, from Real del Monte, in Mexico. The height of the flowering plant is little short of twelve feet. In some respects it agrees with the description of *Pitcairnia ferruginea*, a Peruvian plant of Ruiz and Pavon, especially in the character “floribus falcato-recurvis,” and in the “pedicellis calycibusque ferrugineo-tomentosis;” but the petals are there purplish and scaleless, and the flowers only two to three inches long. Still, I take it the two plants must be nearly allied; yet it is very difficult to define satisfactorily Bromeliaceous plants without the aid of figures.

DESCR. *Stem* as thick as a man’s leg, 2–3 feet long, rough from the remains of the bases of former years’ leaves, simple or branched. *Leaves* very numerous, terminal on the stem or branch, two to three feet long, recurved, from a broad base, ligulato-subulate, very much and finely acuminate, hard-coriaceous, dark-green above, whitish and hoary beneath, channelled, the margin beset with large, hard, subulate, subfalcate, black, very pungent *spines*. *Keel* beset with whitish spines. *Peduncle* or *scape* five to six feet long, stout in proportion, bracteated with subulate leaf-like *bracts*. *Panicle* longer than

MARCH 1ST, 1861.

the scape, ovate in circumscription; the *rachis*, *branches*, *pedicels*, *calyx*, and large, ovate *bracteas*, densely clothed with thick, rusty-coloured tomentum. *Pedicels* much longer than the bracts. *Flowers*, in bud, almost subulate, curved downwards, resembling the beak of a bird; when arrived at full maturity, five and rather more inches long. *Sepals* two to two and a half inches long, lanceolate, acuminate, and, as well as the oblong-linear, obtuse, greenish-white petals, erecto-patent, all decurved. There are two large scales at the base of the petals. *Stamens* shorter than the corolla, lodged in the upper canaliculate petal. *Ovary* oblong, obtusely trigonal, free. *Style* longer than the stamens. *Stigmas* three, spirally twisted.

Fig. 1. Much reduced figure of *Puya grandiflora*. 2. Petal, with its scales at the base. 3. Pistil:—*natural size*.



TAB. 4696.

PUYA SULPHUREA.

Sulphur-flowered Puya.

Nat. Ord. BROMELIACEÆ.—HEXANDRIA MONOGYNIA.

Gen. Char. (*Vide supra*, TAB. 4309.)

PUYA *sulphurea*; acaulis, foliis inermibus lineari-lanceolatis tenui-acuminatis obscure nervosis basi angustatis canaliculatis, spica solitaria pedunculata (una cum pedunculo folia subsuperantibus) strobiliformi apice acuminata, bracteis inferioribus foliaceis, superioribus (floriferis) ovatis anguste acuminatis erectis concavis dense imbricatis purpureo-rufis apice viridibus, floribus sessilibus sulphureis longe exsertis, petalis squama bifida prope basin, staminibus subinclusis.

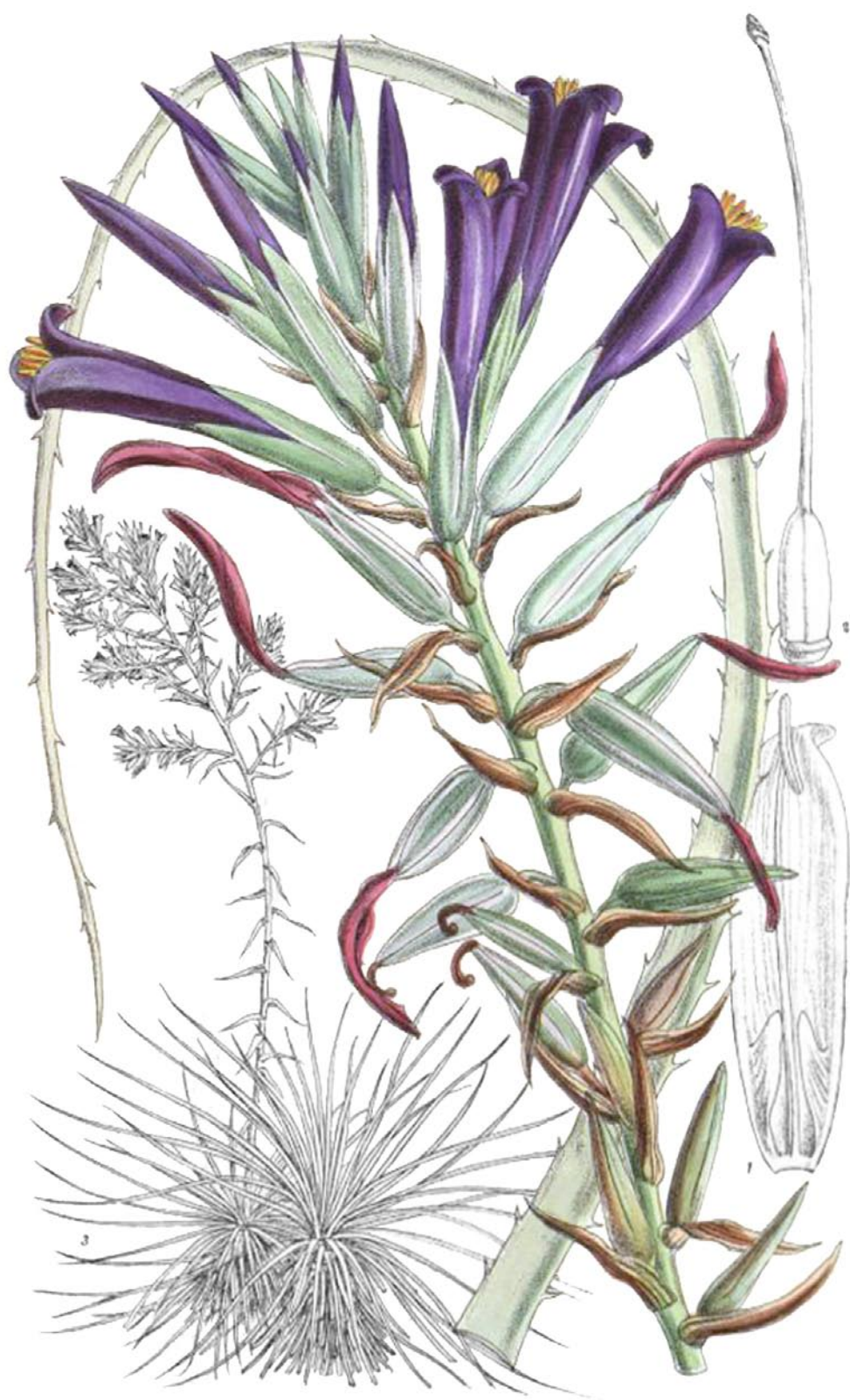
PUYA *sulphurea*. *Hort. Hernhauss.*

Although this is far inferior in point of beauty and of size to the splendid *Puya Altensteinii*, var. *gigantea*, figured at our Tab. 4309, it is nevertheless a handsome-looking plant, and has the merit of flowering in the winter months (with us in December). We received it from the Royal Garden of Hernhaussen, under the name we have retained; but who is the author of the name, or whether or not anywhere published, and even regarding the native country, we are ignorant. The genus (of Molina) is the same as *Pourretia* of Ruiz and Pavon, *Pitcairnia* of other authors, from which latter genus it is, according to Schultes, distinguished, “præter habitum, in calyce perfecte infero, plus minus subspiraliter convoluto, in antheris linearibus, incumbentibus, in capsula valvulis septiferis, et in seminibus compressis membrana brevi cinctis.” We are not in a condition to verify the majority of these characters; but we are satisfied that the whole of the Bromeliaceous family requires a careful revision, which is unfortunately difficult from such dried specimens as exist in our Herbarium; and besides comparatively few species are found in cultivation, by no means so many as deserve to be. Of the present genus, only five species are taken up in Schultes, and the present is certainly not among them.

FEBRUARY 1ST, 1853.

DESCR. The principal *leaves* of our plant spring directly from the root; they are two to three feet long (the longest of them nearly three inches wide in the broadest part), and they gradually taper to a long point upwards, while below they lengthen into a narrow channelled base; glabrous, as is every part of the plant, full dark green, slightly waved at the edge, and furrowed above in the centre and keeled at the back, quite entire. From the centre of the plant the *peduncle* arises, two feet or more long, leafy below, the leaves like those from the root, but smaller, passing gradually into *bracteas*, which latter form an imbricated long cone-like *spike*, a span to a foot and more long, tapering to a point; these bracteas are erect, concave, purple-red, tapering into a slender, rather pungent, subulate, green point. The moderately large, pale, sulphur-coloured *flowers* are protruded much beyond the bracteas, and are sessile. *Calycine leaves* less than half the length of three unequal slightly-twisted *petals*, each of which has a bifid scale within at the base. *Stamens* about equal in length with the petals. *Anthers* yellow. *Ovary* free, pyramidal. *Style* slender, filiform, rather longer than the stamens. *Stigmas* three, spiral, twisted.

Fig. 1. Flower:—*natural size*. 2. Pistil:—*magnified*. 3. Petal seen from within:—*magnified*.



TAB. 8194.

PUYA VIOLACEA.

Chile.

BROMELICEAE.

PUYA, *Molina; Benth. et Hook. f. Gen. Plant.* vol. ii. p. 666; *Mez in DC. Monogr. Phaner.* vol. ix. p. 466.

Puya violacea, *Mez in DC. Monogr. Phaner.* vol. ix. p. 476; species *P. caeruleae*, Lindl. (*Bot. Reg.* vol. xxvi. t. 11) valde affinis, differt bracteis floralibus multo minoribus integris et floribus minoribus.

Planta perennis, florifera circiter metralis, caule pauciramoso brevi. *Folia* numerosa, conferta, rigida, linearia, maxima vix 0·5 m. longa, longissime filiformi-acuminata, margine auleis inter se 1–2 cm. distantibus sursum spectantibus armata, striata, dorso minute obscurissimeque lepidota, lepidibus stellatis. *Inflorescentia* terminalis, erecta, pinnatim paniculata, 45–50 cm. alta; scapus graciliusculus, bracteis linearibus 3–4 cm. longis acutis marcescentibus fuscis per totam fere longitudinem vestitus; rami laterales circiter 12, quaquaversi, patentes vel deflexi, 15–20 cm. longi, usque 25-flori. *Bractee florigeræ* ut in scapo, calyce breviores, glabrae vel glabrescentes. *Flores* spiraliter dispositi, breviter pedicellati, inter se demum 0·5–1 cm. distantes, circiter 6 cm. longi. *Sepala* 8, viridia, lanceolata, circiter 3 cm. longa, acuta, persistentia. *Petala* 3, violacea, oblongo-spathulata, circiter 6 cm. longa, apice obtusa, breviter recurva, intus basi 2-squamata. *Stamina* 6, petala subaequantia, antheris luteis vel aurantiacis. *Stylus* inclusus. *Capsula* “perfecta ellipsoidea, circiter 1–5 cm. longa, nitida, apice obtusa, et septicide et loculicide in partes 6 dehiscens. *Semina* 3 mm. longa, cuneiformia, dorso apiceque anguste alata” (*Mez*).—*Pitcairnia violacea*, Brongn. in *Ann. Fl. et Pomon.* 1847, vol. i. p. 116, cum fig.; Baker, *Brom.* p. 118. *Pourretia violacea*, Linden Cat. 1853, n. 8, p. 31. *Puya paniculata*, Philippi, in *Linnaea*, vol. xxiii. p. 247. *Pitcairnia Philippii*, Baker, *Brom.* p. 122.

The *Annales de Flore et de Pomone*, in which *Puya* (*Pitcairnia*) *violacea* was first published, are not in the Kew library, but from an extract from the same in Otto and Dietrich's *Allgemeine Gartenzeitung*, 1847, vol. xv. p. 299, it appears that *Puya violacea* was first raised from seed in the *Jardin des Plantes*, Paris, in 1833 and flowered for the first time at Neuilly in 1847, a long time to wait for flowers, though they are brilliant when they do appear. But many Bromeliaceae flower only once or at distant intervals. The conflicting views of different writers on some of the genera of the Bromeliaceae are somewhat puzzling. Bentham and Hooker retain *Pitcairnia*, *Puya* (including *Pourretia*) and
MAY, 1908.

Tillandsia (including *Vriesia*). Baker's limitations are much the same; but Mez keeps up both *Tillandsia* and *Vriesia*; the latter having free petals; the former connate or closely conglutinated petals. Apart from this, a very large proportion of the Bromeliaceae in cultivation have names under at least two genera.

Mez has also revised the synonymy of some of the allied species of *Puya*. Lindley adopted the name *caerulea* for the plant he figured and described in the place cited above, believing it to be the same as that mentioned in Miers's Travels in Chile and La Plata, vol. ii. p. 531, as *Pourretia caerulea*; but Mez refers the latter to *Pitcairnia alpestris*, Poepp., to which he also refers *Puya Whytei*, Hook. f. B. M. t. 5732. *Pourretia rubricaulis*, Miers, Travels, p. 531, he regards as the same as *Pitcairnia caerulea*, Lindl.

He distinguishes *Puya*, Molina (including *Pourretia*, Ruiz and Pavon), from *Pitcairnia*, L'heritier, by the completely superior ovary, and he divides *Puya* into three subgenera: *Eupuya*, *Pitcairniopsis* and *Pourretia*.

DESCRIPTION.—*Shrub*, flowering more than once, including inflorescence about 3 ft. high. *Stem* short; branches few. *Leaves* numerous, crowded, stiff, linear, largest 20 in. long, tapering upwards and very narrow, margin furnished with small prickles, $\frac{1}{2}$ — $\frac{3}{4}$ in. apart and directed upwards, finely striated, underside clothed with microscopic stellate scales. *Inflorescence* terminal, erect; pinnately paniculate, 18—20 in. high; scape rather slender, clothed with brown linear bracts 1—2 in. long, which shrivel and persist; lateral branches about twelve, spreading in all directions, deflected, 5—8 in. long, 20—25-flowered. *Flowers* spirally arranged, shortly stalked, $\frac{1}{4}$ — $\frac{1}{2}$ in. apart. *Sepals* 3, green, lanceolate, $1-1\frac{1}{4}$ in. long, acute, persistent. *Petals* 3, deep violet, oblong-spathulate, about $2\frac{1}{4}$ in. long, obtuse, shortly recurved, furnished with two scales inside near the base. *Stamens* 6, nearly equalling the petals; anthers orange. *Style* included.—W. BOTTING HEMSLEY.

CULTIVATION.—*Puya* and that section of *Pitcairnia* which Mr. Baker separated under the name of *Puyopsis* are all hard prickly-leaved plants which appear to be happiest when cultivated under the same condition as *Cacti*, *Agave*,

etc. They do not suffer if kept dry at the root, and the poorer the soil the healthier they are; but they must be in a position where they can get plenty of sunlight and air. The handsomest of them is *P. caerulea*, which has flowered several times at Kew. Between this and *P. violaea* there is a close resemblance, but the flowers of the latter are smaller. The latter flowered on the rockery at the south end of the Mexican House in June last year, where it has stood since the house was built, in 1897. The plant was presented to Kew in 1879 by the late Mr. J. Anderson Henry, Hay Lodge, Trinity, Edinburgh, who had it under the name of *Puya paniculata*.—W. WATSON.

Fig. 1, a petal and a stamen; 2, a pistil—*both enlarged*; 3, whole plant:—*about $\frac{1}{8}$ nat. size.*



TAB. 4991.

PUYA VIRESCENS.

Greenish-flowered Puya.

Nat. Ord. BROMELIACEÆ.—HEXANDRIA MONOGYNIA.

Gen. Char. *Perigonii* liberi sexpartiti *laciniae* exteriores calycinae, æquales, subconvolutæ, interiores petaloideæ, inferne convolutæ, apice patentim reflexæ, marcescendo spiraliter convolutæ. *Stamina* 6, hypogyna; *filamenta* subulata; *antheræ* incumbentes, lineares, basi emarginatæ. *Ovarium* liberum, trigonum, triloculare. *Ovula* plurima, in loculorum angulo centrali biseriata, horizontalia, cartilaginea, pyramidato-trigona, trilocularis, loculicido-trivalvis. *Semina* plurima, compressa, hinc anguste membranaceo-marginata.—Herbæ in *America tropica et Australia extratropica monticolæ*; caule *simplici*, interdum subarboreo, folioso; foliis *angustis, spinosis*; spicis *bracteatis, solitariis vel paniculatis*. Endl.

PUYA *virescens*; acaulis, foliis inermibus lineari-lanceolatis breviter tenuissime acuminatis striatis basi dilatato-ventricosis, spica solitaria pedunculata (una cum pedunculo folia superantibus) laxa subcomposita bracteata, bracteis ovatis acuminatis superioribus obtusis pedunculi longissime acuminatis, floribus subsessilibus, petalis pallide-luteo-virescentibus lato-spathulatis limbo patente ungue nudo, filamentis cum ungue confluentibus, ovario supero.

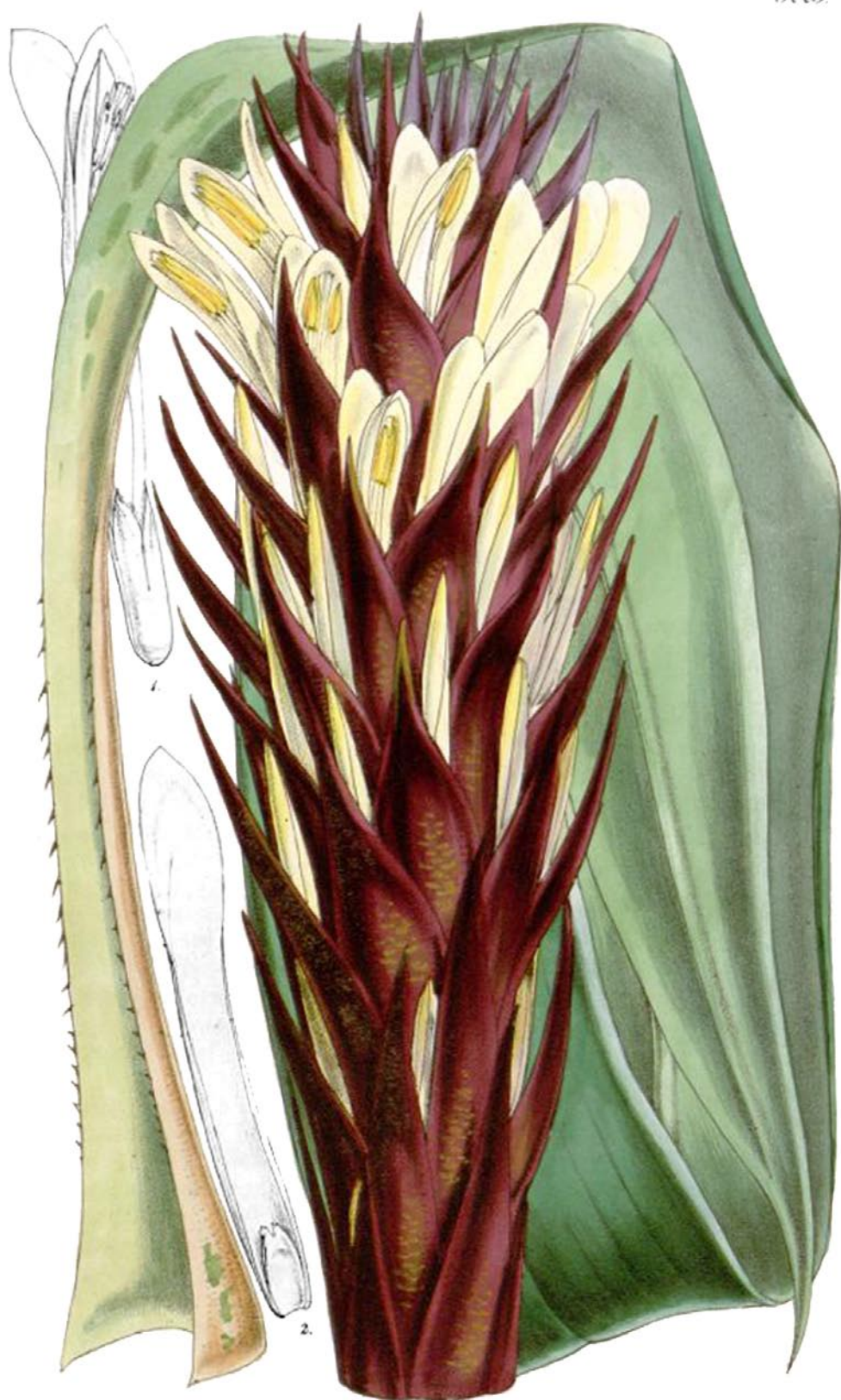
A native probably of Venezuela or New Granada, communicated from the Belgian Gardens under the name of "*Puya*," to which genus we are willing to refer it, until the very difficult family of *Bromeliaceæ* shall have been judiciously revised by some competent authority. The materials for such a work are, comparatively speaking, but small in the herbarium, because they are difficult and troublesome plants to dry. Happily they are worthy of cultivation, and many unnamed species are, we believe, now in our stoves in the English and Belgian gardens. The present species flowered with us in March 1857.

DESCR. A stemless *plant* of moderate size. *Leaves* one and a half to two feet long, from a dilated and somewhat ventricose base, broad-linear, sublanceolate, tapering rather suddenly to a short but finely acuminate point; the margin quite entire and unarmed, the colour a deep dull-green, the surface striated with close-placed parallel lines. *Scape* two feet and more high, leafy below, the leaves gradually passing into closely-placed

JULY 1ST, 1857.

somewhat imbricating bracts, which form a broad sheathing base become much acuminate, subulate. *Spike* oblong, six to eight inches long, lax, somewhat compound, much bracteate. *Bracteas* of the spike broad-ovate, acuminate, the inner ones more obtuse: all of them are yellow-green, tinged and striated with red-brown. *Flowers* sessile. *Calyx* of three, linear-oblong, submembranaceous, obtuse, entire, erect *sepals*, appressed to the narrow base of the corolla. *Petals* three, large, broad, spatulate, very pale-whitish, or pale-yellow-green colour, the *limb* spreading, the long *claws* slightly adherent at the margins. *Stamens* six. *Filaments* shorter than the petals, for the greater part of the length united and confluent with the claws. *Anthers* subsagittate. *Ovary* subpyramidal, obtusely trigonal. *Style* as long as the stamens, articulated near the base: *stigma* of three, cuneate, papillose lobes.

Fig. 1. Petal and two stamens. 2. Pistil. 3. Transverse section of ovary.



TAB. 5225.

PUYA WARSZEWICZII.

Warszewicz's Puya.

Nat. Ord. BROMELIACEÆ.—HEXANDRIA MONOGYNIA.

Gen. Char. (*Vide supra*, TAB. 4991.)

PUYA *Warszewiczii*; foliis 2–3-pedalibus lato-lanceolatis anguste acuminatis striatis subundulatis inferne longe anguste attenuatis canaliculatis basi dilatatis amplexantibus supra basin solummodo retrorsum aculeatis, scapo inferne foliaceo dein in spicam oblongam terminante dense bracteato, bracteis imbricatis rubro-sanguineis lanceolato-acuminatis flores albo-flavescentes superantibus, petalis lineari-spathulatis basi squama apice lacera intructa.

PUYA *Warszewiczii*. *Wendland, in litt.*

This may be reckoned among the handsomest of the many handsome tropical *Bromeliaceæ*. Its leaves are peculiar, very long, and rather flaccid and undulated, singularly narrow and contracted and grooved towards the base, and there alone furnished for about the length of four inches at each margin with dark brown reflexed spinules. The contrast is striking between the yellowish-white and rather large flowers, and the deep blood-coloured, long, acuminate, and imbricated bracteas. We are indebted to Mr. Wendland, of the Royal Gardens, Hanover, for the plant here figured, which flowered in our stove, August, 1860. We do not find it anywhere described, and adopt the name by which we received it. It is supposed to be a native of Guatemala.

DESCR. Whole *plant* two to three feet high. *Leaves* radical, two to three feet long, from a broad amplexicaul base gradually narrowing, with involute margin, and there alone spiny with reflexed black prickles, again expanding into a long lanceolate acuminate blade, nearly three inches in diameter in its widest part, subcoriaceous, striated, subundulate, quite entire, dark green, paler beneath. *Scape* shorter than the leaves, leafy below; the leaves gradually becoming *bracteas* upwards, and then bearing a large, oblong, densely bracteate *spike*. *Bracteas* of a deep rich

JANUARY 1ST, 1861.

blood-colour, broad lanceolate, sharply acuminate, rigid. *Flowers* large, yellowish-white, scarcely exceeding the bracts. *Calyx* of three equal, oblong-lanceolate, very acute *sepals*, united at their base. *Petals* spatulate, each with a large oval *scale* at the base, notched at its apex.

Fig. 1. Flower,—*slightly magnified*. 2. Petal,—*more magnified*.



PUYA WHYTEI.

Mr. Whyte's Chilian Puya.

 Nat. Ord. BROMELIACEÆ.—HEXANDRIA MONOGYNIA.

Gen. Char. *Sepala* 3, herbacea, æqualia. *Petala* 3, obovato-oblonga, basi erecta, supra medium patenti-recurva, basi intus squama aucta, marcescendo spiraliter convoluta. *Stamina* 6, hypogyna, æqualia, filamentis filiformibus; antheræ oblongæ v. lineares, basi 2-fidæ. *Ovarium* liberum, 3-gonum, 3-loculare; stylus filiformis, stigmatibus 3 spiraliter contortis; ovula numerosa, in loculis 2-seriata, horizontalia. *Capsula* cartilaginea, 3-locularis, loculicide 3-valvis, polysperma. *Semina* compressa.—Herbæ *America Australis incolæ, rupicole, caule brevi v. elongato apice folioso. Folia angusta, spinosa. Flores mediocres, in paniculas bracteatas dispositi.*

PUYA *Whytei*; foliis confertis patenti-recurvis elongato-subulatis remote spinosis spinis inferioribus recurvis, supra concavis viridibus, subtus sparse argenteo-lepidotis, pedunculo valido erecto bracteis recurvis oblongis vestito, panícula erecta pyramidata densiflora, bracteis mediis superioribusque integerrimis, petalis obovato-oblongis luride virescente-cæruleis metallicis.

A superb rock-plant, introduced by Messrs. Veitch from Chili, through Mark Whyte, Esq., an enthusiastic amateur, in whose honour as discoverer it is named at Messrs. Veitch's request. As a species, it is so very similar to the drawing of *P. cærulea*, in the Botanical Register (1840, t. 11), that it is with great hesitation that I propose another name for it. The most obvious difference, in comparing the plates, will be seen to consist in the colouring of the flowers, and this I suspect may be due to the colourist; for the most peculiar dull metallic blue shot with green of Messrs. Veitch's plant is so difficult for an artist to seize and represent, that I can well conceive Dr. Lindley's colourist to have failed in reproducing it. In *P. cærulea* the bracts are more serrated, and the petals narrower; in all other respects they seem identical. *P. cærulea* is described as an almost hardy perennial rock-plant, of a most striking habit, and very ornamental. *P. Whytei* has proved hardy through last winter, and indeed flowered in the open air.

OCTOBER 1ST, 1868.

DESCR. *Stems* very short and branching, bearing an immense rigid tuft of spreading and recurved foliage. *Leaves* one to two feet long, narrow subulate, one inch broad at the base, finely attenuated, spinous, spines remote, rigid, curved, upper surface concave, green, lower somewhat silvery. *Peduncle* three feet high, stout, erect, clothed with broadly-oblong recurved bracts. *Panicle* pyramidal, much and densely branched, branches ascending, densely clothed with flowers and bracts. *Flowers* shortly pedicelled, an inch and a half long, campanulate. *Sepals* linear-oblong, obtuse, green, convex, not keeled. *Petals* more than twice as long, obovate-oblong, dull metallic blue shot with green, red purple when withered. *Anthers* bright orange-yellow. *Stigmas* spirally twisted.—*J. D. H.*

Fig 1. Reduced figure of plant. 2. Leaf; and 3, portion of panicle, both of the natural size. 4. Stamen and pistil. 5. Transverse section of ovary. 6. Pistil;—Figs. 4 to 6 magnified.



TAB. 7148.

RHODOSTACHYS ANDINA.

Native of Chili.

Nat. Ord. BROMELIACEÆ.—Tribe BROMELIÆÆ.

Genus RHODOSTACHYS, *Philippi*; (*Benth. et Hook. f. Gen. Pl.* vol. iii. p. 662.)

RHODOSTACHYS *andina*; acaulis, foliis multis dense rosulatis linearibus rigidis falcatis pedalibus vel sesquipedalibus facie glabris canaliculatis dorso persistenter albo-lepidotis margine aculeis crebris uncinatis stramineis armatis, floribus in capitulum centrale sessilem globosum aggregatis, bracteis exterioribus ovatis cuspidatis spinoso-serratis, interioribus oblanceolato-oblongis scariosis, ovario clavato-trigono glabro, calyci segmentis lanceolatis albis ovario æquilongis, petalis lanceolatis rubelli, staminibus styloque petalis longioribus.

R. *andina*, *Phil. in Linnæa*, vol. xxix p. 57; *Baker Handb. Bromel.* p. 28.

Bromelia longifolia, *Lindl. in Paxt. Flor. Gard.* vol. ii. p. 139, tab. 65; *Lemaire Jard. Fleur.* t. 223, non Rudge.

Ruckia Ellemeti, *Regel Gartenfl.* 1868, p. 65, t. 571.

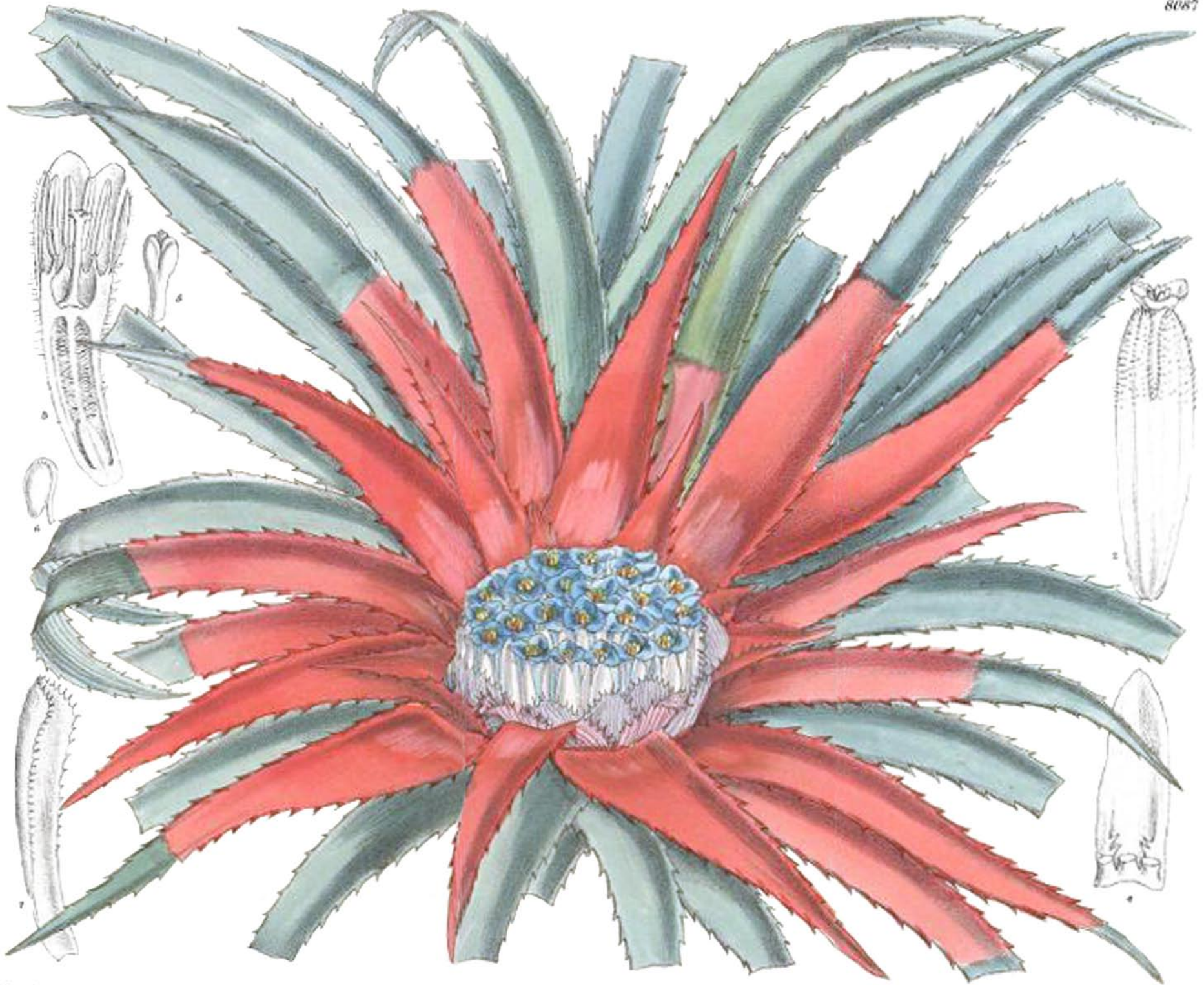
This very ornamental Bromeliad is an inhabitant of the Cordilleras of the northern provinces of Chili. It only requires cool treatment, and at Kew is grown in the cactus-house. It is the plant on which Philippi founded his genus *Rhodostachys*, and Regel, a few years later, his genus *Ruckia*. It seems to have been introduced into cultivation by Mr. Henderson, who exhibited it in flower at one of the shows of the Royal Horticultural Society in August, 1851. For a long time it was confounded with the *Bromelia longifolia* of Rudge, which is a native of Guiana, and now Placed in the genus *Streptocalyx*. Our drawing was made from a plant which was flowered by F. D. Godman, Esq., F.R.S., at his residence near Horsham, in November, 1889, and this year we have again received it in flower from H. J. Elwes, Esq., of Cirencester. The sketch showing the general habit of the plant was made in Kew Gardens.

DESCR. Acaulescent. *Leaves* about a hundred in a dense rosette, linear, rigid, recurved, a foot or a foot and a half long, an inch broad at the clasping base, half an inch in the middle, deeply channelled down the finally

DECEMBER 1ST, 1890.

glabrous face, persistently white-lepidote on the back, armed on the margin with close hooked pungent stramineous spines. *Flowers* very numerous, forming a dense globose nearly sessile central head two or three inches in diameter; outer bracts ovate-cuspidate, spine-margined, slightly tinged with red; inner oblanceolate-oblong, white, scariose, shorter than the calyx. *Ovary* clavate-trigonous, glabrous, under an inch long. *Calyx-segments* lanceolate, white, as long as the ovary. *Petals* lanceolate, bright pink, an inch long. *Stamens* longer than the petals; anthers linear-oblong, spreading, bright yellow. *Style* overtopping the stamens; branches very short.—*J. G. Baker.*

Fig. 1, a complete flower; 2, lepidote scale; 3, petal and two stamens; 4, vertical section of ovary; 5, apex of style and its branches:—*all more or less enlarged.*



TAB. 8087.
RHODOSTACHYS PITCAIRNIIFOLIA.
Chili.

BROMELIACEÆ. Tribe BROMELIÆ.

RHODOSTACHYS, *Phil.*: *Benth. et Hook. f. Gen. Plant.* vol. iii. p. 662.

Rhodostachys pitcairniifolia, *Benth. in Benth. et Hook. f. Gen. Plant.* vol. iii. p. 662; *Baker, Handb. Bromel.* p. 28; *R. andinæ*, *Phil. (Bot. Mag. t. 7148)* affinis; hæc vero foliis angustioribus, petalis carneis differt.

Caulis brevis, apice ramos breves nonnullos gerens. *Folia* plura, dense conferta, a basi ovato-triangulari ensiformia, circa 1 ped. longa, basi 1 poll. lata, primum albo-lepidota, demum fere glabra, in marginibus spinis incurvis 4 poll. distantibus instructa, intima facie superiore splendide rubra. *Flores* in capitulo centrali sessili circa 2 poll. diametro dense conferti. *Sepala* anguste lanceolato-acuminata, fere 1 poll. longa, primum extus dense albo-lepidota. *Petala* cœrulea, quam sepala paullo longiora, oblonga, obtusa, erecta, basi intus callis duobus parvis instructa. *Stamina* quam petala paullo breviora; filamenta basi dilatata; antheræ lineares, lutæ, circa 5 lin. longæ; pollinis granules læves, 50 μ diam. *Ovarium* oblongum, plano-convexum, parte superiore pubescente; stylus basi incrassatus, quam antheræ dimidio brevior; stigmata tria, brevia.—*Bromelia pitcairniifolia*, C. Koch, *Wochenschr.* 1868, p. 325, and 1870, p. 149. *B. Joinvillei*, Morren in *Belg. Hort.* 1876, p. 161, tt. 10–11. *Hechtia pitcairniifolia*, Verlot in *Rev. Hort.* 1868, p. 211, cum icon. *Billbergia Joinvillei*, Van Houtte, *Catal.* 1871, n. 138. *Pourretia Joinvillei*, *Hort. ex Chatin in Journ. Soc. Centr. Hortic. France*, 1871, p. 360. *P. flexilis* and *P. mexicana*, *Hort. ex Morren in Belg. Hort.* 1876, p. 161. *Fascicularia pitcairniifolia*, Mez in *DC. Monogr. Phan.* vol. ix. p. 10.

The plant figured flowered for the first time in November last, in the collection of Major W. L. Harvey at Tredarvah, Penzance, having been originally brought from Germany by the late Mrs. Harvey over thirty years ago. There are numerous large plants at Kew, one of which, on the authority of Mr. W. Watson, the Curator, flowered ten to fifteen years ago, but not since. Plants sent from Kew to Tresco are stated by Mr. Dorrien-Smith to flower there annually in the open air. The species first flowered in cultivation in 1866 in M. Luddemann's garden in Paris; since then it has done so at several places on the continent.

As can be seen from the above quoted synonymy, *Rhodostachys pitcairniifolia* has been placed in several different genera. Mez (in *Mart. Flor. Bras.* vol. iii. pars ii. p. 627) constitutes for it a new genus, *Fascicularia*, of which he gives as diagnostic characters, "petalis ligulatis pollineque

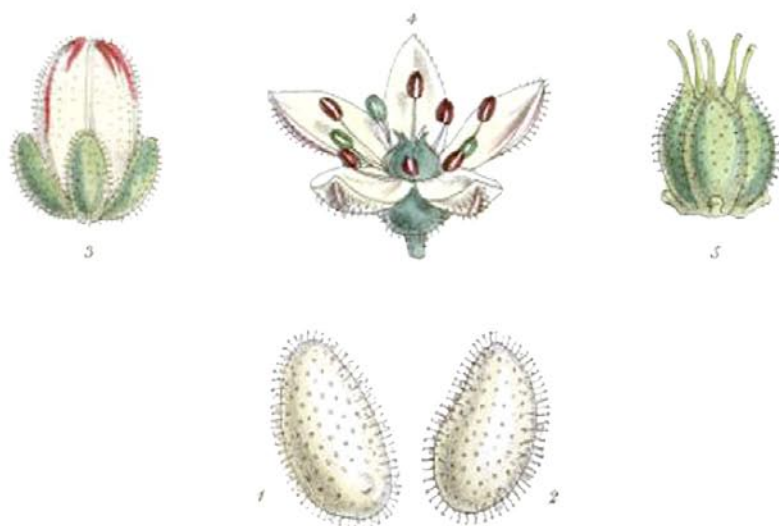
AUGUST 1ST, 1906.

insigne," but these appear to us of insufficient value for generic rank.

When in flower, the contrasted colours of the flowers, together with that of the surrounding leaves, make it highly decorative; at other times its densely cæspitose habit and easy cultivation make it a desirable plant in a collection.

Descr.—*Stem* short, thick, bearing several short branches. *Leaves* numerous and crowded, ensiform from an ovate triangular base, about one foot long, one inch wide at the base, almost glabrous when adult, thinly white-lepidote on both sides when young, margins with short, upcurved spines about four lines apart, the innermost bright red on the basal part of the upper surface. *Flowers* in a dense central sessile head about two inches in diameter. *Sepals* nearly an inch long, at first densely white-lepidote outside, narrowly lanceolate-acuminate. *Petals* blue, a little longer than the sepals, oblong, obtuse, erect, bearing two small calli near their base on the inner side. *Stamens* slightly shorter than the petals; filaments dilated below; anthers yellow, linear, about five lines long; pollen subglobose, smooth. *Ovary* oblong, plano-convex, hairy in the upper part; style thickened below, reaching to the middle of the anthers; stigmas three, short.—C. H. WRIGHT.

Fig. 1, bracteole; 2, flower; 3, section of flower; 4, a petal with calli and bases of stamens; 5, apex of style; 6, ovule:—*all enlarged*.



TAB. 6027.

SEDUM DASYPHYLLUM, VAR. GLANDULIFERUM.

Native of Spain and Marocco.

Nat. Ord. CRASSULACEÆ.

Genus SEDUM, L.; (*Benth. and Hook. f. Gen. Pl.*, vol. i. p. 659).

SEDUM *dasyphyllum* var. *glanduliferum*; humile, cespitosum, glaucum, glanduloso-pubescens, caulibus brevibus basi ramosis tortuosis, foliis surculorum dense congestis ovoideis v. ellipsoideis teretibus obtusis, caulinis sparsis consimilibus v. longioribus et subspathulatis, cymis paucifloris, sepalis oblongis obtusis petalisque albis roseo-tinctis extus glanduloso-pubescentibus, ovariis turgidis hispidulis in stylos breves suberectos repente angustatis, glandulis hypogynis parvis.

SEDUM *dasyphyllum*, var. β *glanduliferum*, *Moris Flor. Sardoæ*, vol. ii. p. 125.

SEDUM *glanduliferum*, *Gussone Flor. Sic. Prodr.*, vol. i. p. 519; *Tenore Flor. Neap. Syll.*, p. 226, et *Flor. Nap.*, vol. iv. p. 251, t. 232, f. 2; *Boiss. Voy. Espagn.*, p. 226.

SEDUM *Corsicum*, *Duby Bot. Gall.*, vol. i. p. 292; *DC. Prodr.*, vol. iii. p. 406; *Tenore Flor. Nap.*, vol. iv. p. 252.

A very free-growing variety of *Sedum dasyphyllum*, well adapted on this account and from its glaucous habit for rock-work cultivation. It is a native of dry rocks and banks in Spain, extending thence to Sicily, Corsica, and Calabria, ascending in the former country to 7000 feet elevation on the Sierra Nevada, and also occurring in North Africa from the Atlas to the Blidah province of Algeria and throughout the mountainous regions of Marocco. It is most nearly allied to *S. dasyphyllum*, as a variety of which it is no doubt correctly regarded by Moris in his *Flora Sardoæ*, who observes that the amount of glandular pubescence varies greatly, and that the petals are obtuse, acute, or shortly acuminate in both the original *S. dasyphyllum* and its variety.

APRIL 1ST, 1873.

It flowered both in the Royal Gardens and at Benthall Hall from plants brought from the greater Atlas by Mr. Maw and myself in 1871.

DESCR. Tufted, perennial, glaucous, glandular-pubescent. *Stems* prostrate and ascending, one to three inches long, the flowerless shoots short, densely clothed with imbricating leaves, and forming club-shaped masses. *Leaves* a quarter to one-third of an inch long, succulent, sessile, ovoid or ellipsoid, obtuse, terete, hardly flattened on the upper surface; those on the flower-bearing stems remote, often larger and more obovate or spatulate. *Cymes* 5–8-flowered; flowers very shortly pedicelled, one-third of an inch in diameter, white with rose-coloured tips and dorsal keel of the petals. *Sepals* green, oblong, obtuse, glandular, half as long as the corolla. *Petals* elliptic-ovate, acute obtuse or shortly acuminate, glandular-pubescent at the back. *Anthers* brown. *Glands* short, small, clavate. *Ovaries* turgid, hispid, abruptly contracted into short somewhat recurved styles.—*J. D. H.*

Figs. 1 and 2, Leaves; 3, bud; 4, flower expanded; 5, ovaries and hypogynous glands:—*all magnified.*



TAB. 5924.

SEDUM GLANDULOSUM.

Native of Sardinia.

Nat. Ord. CRASSULACEÆ.

Genus SEDUM, *L.*; (*Benth. and Hook. f. Gen. Pl.*, vol. i. p. 659).

SEDUM *glandulosum*; annuum, humile, glanduloso-pubescens, foliis erecto-patentibus sparsis lineari-oblongis obtusis cylindricis facie obscure complanatis, floribus breviter pedicellatis axillaribus et in cymas breves simplices v. bifidas dispositis purpurascentibus, sepalis late ovatis subacutis, petalis ellipticis acutis, filamentis gracilibus, antheris purpureis, carpellis turgidis, erectis.

SEDUM *glandulosum*, *Moris Stirp. Sard.*, El. i. p. 20; *Flor. Sard.*, vol. iv. p. 121, t. 73, f. 3; *Bertoloni Fl. Ital.*, vol. iv. p. 717.

It is partly in the hope of reviving a taste for the cultivation of a class of plants that were highly deserved favourites with our grandfathers, that the *Botanical Magazine* devotes an occasional plate to such a neglected group as the smaller European succulents,—a taste that is being most commendably and energetically encouraged by Mr. W. Robinson, whose works on the cultivation of rock, alpine, and hardy plants have given a new direction to the energies of those lovers of horticulture who have little time, space, or means for gardening. Such plants possess all the attractions of variety, beauty of form, brightness of colour, rarity (if that be one), and curious structure, and afford far more real gratification to the cultivated amateur and intellectual gardener, than can gaudy carpets and hearth-rugs of Geraniums, Calceolarias, and Verbenas scattered over grass lawns, and gay only for a few weeks of the year.

Sedum glandulosum forms a beautiful object in a pot, is of easy cultivation, and seeds freely; it is a very rare and little

SEPTEMBER 1ST, 1871.

known species, a native of the mountains of Sardinia, to which it was long assumed to be confined. The specimens here figured were, however, supposed to be raised from seeds gathered by G. Maw, Esq., in the Escorial in Spain (as he believes), and kindly communicated by him to the Royal Gardens, where they produced plants that flowered in June last, and were named by Mr. Baker. I state that this is Mr. Maw's impression regarding the origin of this plant; but knowing, as I do, the danger there is of the seeds of annuals becoming mixed, there may be room for doubt. Unfortunately my friend is now on a horticultural tour in the Pyrenees, so that I cannot refer my suspicions to him.

DESCR. Whole plant covered with minute gland-tipped hairs. *Root* annual, of slender fibres. *Stems* two to six inches high or long, suberect, decumbent or ascending, simple or forked. *Leaves* scattered, sessile, one-third to two-thirds of an inch long, linear-oblong, obtuse, cylindric, rather contracted upwards; base quite simple. *Flowers* one-third of an inch in diameter; usually alternate on short recurved simple or forked terminal cymes, pale-red purple; pedicels slender, about as long as the flower. *Sepals* broadly ovate, subacute. *Petals* twice or thrice as long as the calyx, elliptic, acute, keeled. *Stamens* rather shorter than the petals; filaments slender; anthers minute, purple. *Carpels* erect; many seeded; style slender, one-twelfth of an inch long; stigma minute. *Seeds* oblong, smooth, striate.—*J. D. H.*

Fig. 1, Leaf; 2, flower; 3, ditto, with the petals and stamens removed:—*all magnified.*



Tub. & p. f. Gortia Walpolei, Jels. rhacanth.

(1807)

SEDUM OPPOSITIFOLIUM. OPPOSITE-LEAVED
SEDUM.

Class and Order.

DECANDRIA PENTAGYNIA.

Generic Character.

Cal. 5-fidus. *Cor.* 5-petala. *Squamæ* nectariferæ 5, ad basin germinis. *Caps.* 5.

Specific Character and Synonyms.

SEDUM *oppositifolium*; (planifolium) foliis oppositis spathulatis dentatis.

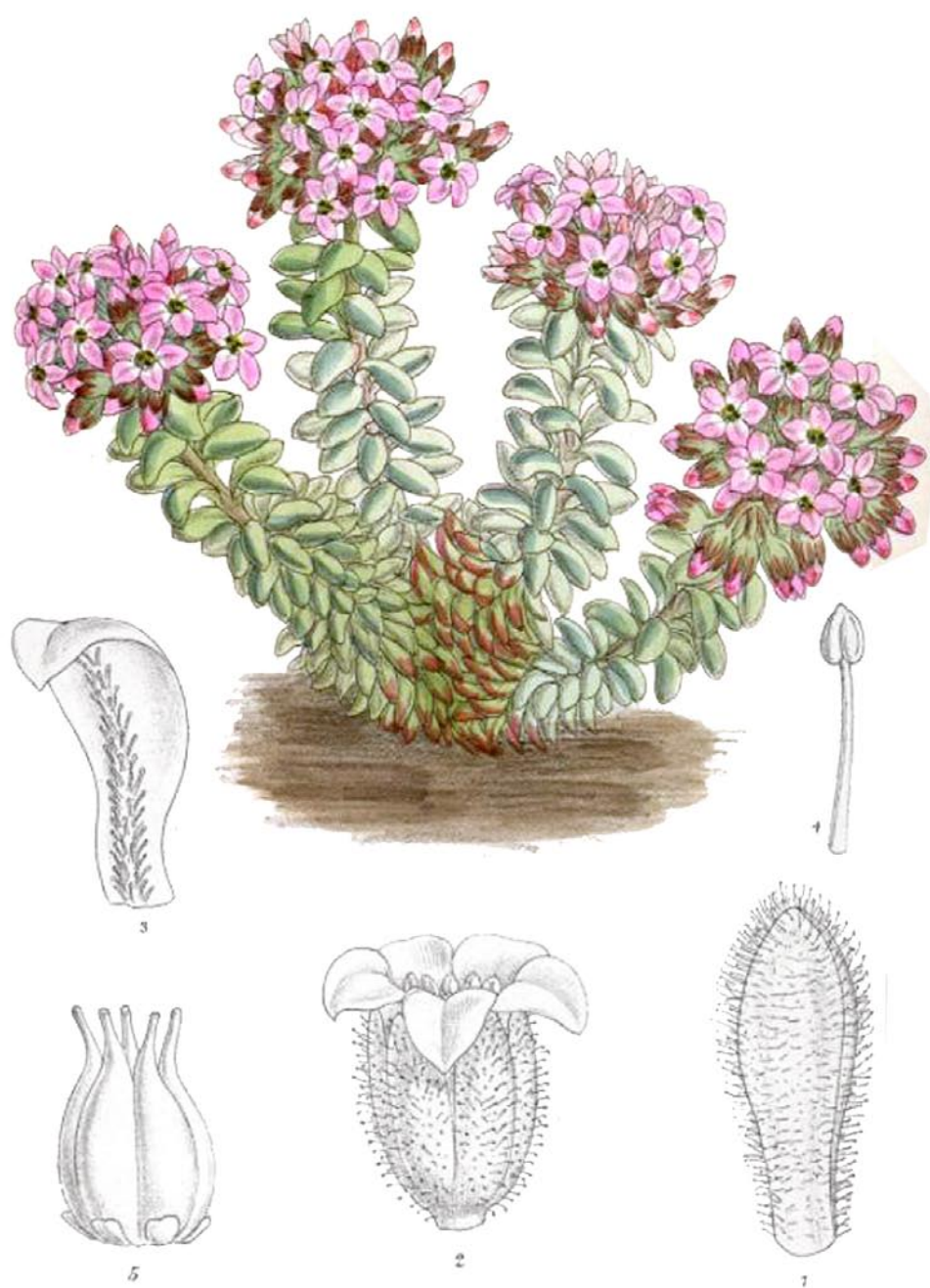
SEDUM *denticulatum*. *Donn Cat. ed. 8. Pursh p. 149. ?*

DESC. *Stem* herbaceous, prostrate; *flowering branches* erect. *Leaves* opposite, fleshy, wedge-shaped, very obtuse, toothed towards the end, when viewed through a lens finely ciliated with glandular hairs. *Flowers* white, in a terminal dichotomous cyme, sessile on the upper of the branches, which are somewhat recurved; the solitary flowers in the axils larger than the rest and peduncled. *Calyx* of five erect leaflets, one which is often smaller than the rest *Corolla* five-petaled: *petals* lanceolate acute. *Stamens* ten, filaments white, shorter than the petals, five of them inserted into the claw of the petal, an the other five into the receptacle opposite the segments of the calyx. *Anthers* yellow, ovate, erect, affixed by the base, *Germens* white: *styles* erect: *stigmas* simple.

Among the alpine plants in the collection of the Comtesse de VANDES, at Bayes-Water, we met with this without being able to learn from whence it came. Our friend, Mr. ROBERT BROWN soon after met with the same in the little garden of a weaver at Manchester, who had the specific name of *dentatum*

tatum to it. He had picked it up, as he thought, from some garden near London, but knew nothing of its native country. It may be the *denticulatum* of the last edition of the Hortus Cantabrigiensis; and if so, it seems that it is a native of Mount Caucasus.

It has the characters of *SEDUM*, but is the only instance we recollect of distinct opposite leaves in this genus; for in the species with imbricated leaves it is not easy to determine whether they are opposite or not. In this circumstance it approaches to a *CRASSULA* or a *SEPTAS*, with the latter of which it has a very near affinity. Flowers the latter part of the summer, and continues long in blossom.



TAB. 8503.

SEDUM PILOSUM.

Caucasus and Armenia.

CRASSULACEÆ.

SEDUM, *Linn.*; *Benth. and Hook. f. Gen. Pl.*, vol. i. p. 659.

Sedum pilosum, *Bieb. Fl. Taur.-Cauc.* vol. i. p. 352, *et Cent. Plant. Rar.* t. 40; *DC. Prodr.* vol. iii. p. 406; *Boiss. F. Orient.* vol. ii. p. 786; *Irving in Gard. Chron.* 1911, vol. xlix. p. 317, fig. 16; affinis *S. sempervivoidi*, *Fisch.*, sed foliis multo angustioribus oblongis vel oblanceolatis et petalis obtusis vel subacutis (nec longe acutis) pulchre roseis facile distinguitur.

Herba succulenta, 5–7 cm. alta, glanduloso-pubescent. *Folia* 5–10 mm. longa, 2–5 mm. lata, oblonga vel oblanceolato-oblonga, obtusa; radicalia dense rosulata; caulina alterna, subluxa vel conferta, patula. *Flores* in cymam corymbosam 2–4 cm. diametro conferti. *Pedicelli* 2–5 mm. longi. *Sepala* erecta, 3·5–4 mm. longa, 1·5–1·75 mm. lata, oblonga, subacuta vel obtusa. *Petala* erecta, apice recurva, 6–7 mm. longs, 2·5–3 mm. lata, elliptico-lanceolata, obtusa vel subacuta, basi in unguem latum angustata, glabra, pulchre rosea. *Stamina* 3–4 mm. longa, glabra; *antherae* rubrae. *Carpella* 4 mm. longa, inferne compresso-ovoidea, superne in stylum 1 mm. longum attenuata.—*Umbilicus pubescens*, *Ledeb. Fl. Ross* vol. ii. p. 175. *Cotyledon pubescens*, *C. A. Mey. Verzeich. Pflanz. Cauc.* p. 150.—*N. E. BUOWN.*

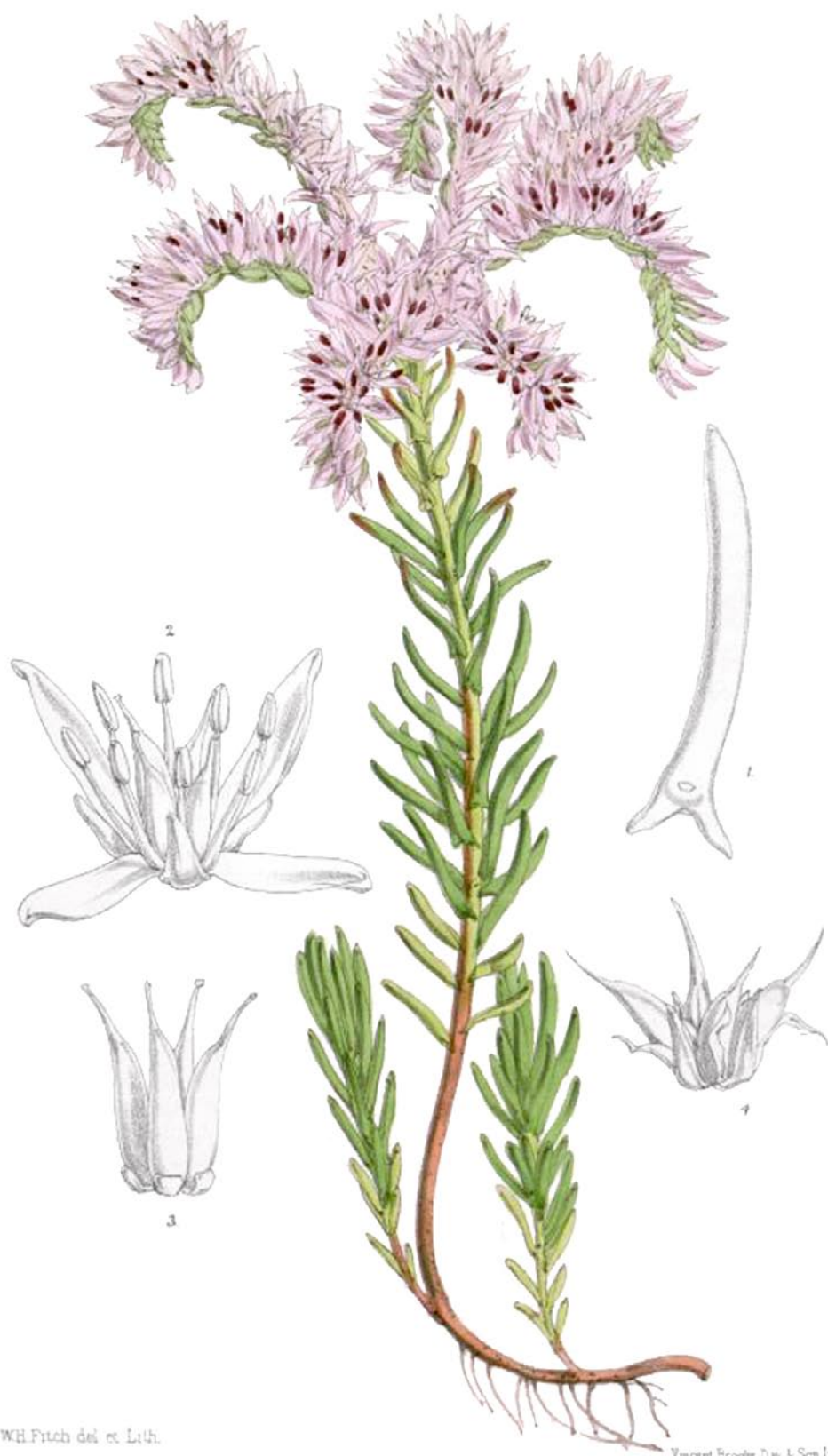
The pleasing little biennial Stonecrop which forms the subject of our figure is one of the most charming members of its genus, from all others of which it is readily distinguished by its beautiful rosy flowers. In *Sedum sempervivoides*, *Fisch.*, which has already been figured at t. 2474 of this work, and to which *S. pilosum* is most nearly allied, the flowers are deep red, and there are several other species in which the petals are purple. But except in *S. pilosum* we do not in the genus *Sedum* find the rich rosy colour which the petals of our plant possess. In this regard and in their shape and general facies the flowers of *S. pilosum* bear a greater resemblance to those of a *Crassula* than to those of a *Sedum*, though the number of the stamens and the disposition of the leaves prove conclusively that it is to the latter, not the former genus that our plant must be referred. A native of the Caucasus, where it affects exposed localities at heights of from 4,000 to 5,000 feet above

JULY, 1913.

sea-level, *S. pilosum* is quite hardy in this country when grown in well-drained, sunny situations in a stony soil. The plant from which our figure has been prepared is one which was received at Kew from the Burton Hardy Plant Company early in 1911. It had been raised, as were other plants already in cultivation but not yet in flower at Kew when this plant arrived, from seed sent to England in 1910 by Messrs. Regel & Kesselring of St. Petersburg.

DESCRIPTION.—*Herb*, succulent, 2–3 in. high, glandular-pubescent. Leaves $\frac{1}{5}$ – $\frac{2}{5}$ in. long, $\frac{1}{12}$ – $\frac{1}{5}$ in. wide, oblong or oblanceolate-oblong, obtuse, radical densely rosulate, cauline alternate, spreading, rather close together. *Flowers* clustered in a corymbose cyme $\frac{3}{4}$ – $1\frac{1}{2}$ in. across; pedicels $\frac{1}{12}$ – $\frac{1}{5}$ in. long. *Sepals* erect, $\frac{1}{7}$ – $\frac{1}{6}$ in. long, oblong, subacute or obtuse. *Petals* erect with recurved tips, $\frac{1}{4}$ in. long, $\frac{1}{10}$ – $\frac{1}{8}$ in. wide, elliptic-lanceolate, obtuse or subacute, narrowed below into a broad claw, glabrous, rose-pink. *Stamens* $\frac{1}{8}$ – $\frac{1}{6}$ in. long, glabrous; anthers red. Carpels $\frac{1}{6}$ in. long, below compressed-ovoid, narrowed upwards into the short style.

Fig. 1, a leaf; 2, a flower; 3, a petal; 4, a stamen; 5, carpels with hypogynous glands:—*all enlarged*.



TAB. 6223.

SEDUM PULCHELLUM.

Native of the United States.

Nat. Ord. CRASSULACEÆ.

Genus SEDUM, Linn. (*Benth. and Hook. f., Gen. Pl.*, vol. i. p. 659).

SEDUM *pulchellum*; glaberrimum, ramis assurgentibus simpliciusculis foliosis, foliis sessilibus erecto- v. recurvo- patentibus cylindraceis obtusis basi auriculatis auriculis obtusis v. in cornua divergentia productis, cymis umbellatis v. paniculatis 3-6-pollicaribus radiatis v. patento-recurvis simplicibus v. basi ramosis densifloris fructiferis erectis, floribus sessilibus secundis, bracteis linearibus, petalis linearibus obtusis v. subacutis sepalis ovato-lanceolatis obtusis duplo longioribus, glandulis parvis truncatis, ovariis cylindraceo-oblongis in stylos subulatos longiusculos attenuatis.

S. pulchellum, *Michx. Fl. Bor. Am.*, vol. i., p. 277; *Torr. et Gr. Fl. N. Am.*, vol. i., p. 559; *Walp. Rep.*, vol. ii., p. 263; *A. Gray, Man. Bot. N. U.S.*, p. 172; *Gard. Chron.*, 1874, ii., p. 552, cum ic. xylog.

S. pulchellum, DC. *Prod.*, vol. iii., p. 403.

The Stone-crops form one of the most attractive and easily cultivated features of the garden rock-work, and a vast number of ornamental species have still to be introduced. Upwards of twenty were cultivated at Kew in 1810, and described in Aiton's "Hortus Kewensis"; the number now grown is about fifty, amongst which that here figured is one of the most attractive. It is a native of the mountains of the United States, from Virginia to Georgia, growing in rocky places.

The fine specimen here figured was sent by the Rev. Mr. Ellacombe from his rich and admirably-named collection at Bitton Vicarage, between Bristol and Bath, one of the most favoured climates and soils in Britain for a general collection of the herbaceous plants of temperate climates, and of which advantages its accomplished occupant makes the best use. It flowers both at Bitton and Kew in July, and must not be confounded (as pointed out by Dr. Masters in the "Gardener's Chronicle") with two plants commonly known in gardens as *S. pulchellum*, namely, *S. sexangulare* and *S. Lydium*.

DESCR. Quite glabrous. *Stems* four to eight inches high,
APRIL 1ST, 1876.

abruptly ascending from the base, flexuous, terete, simple above, leafy. *Leaves* half to one inch long, scattered, sessile, cylindric, obtuse, smooth, pale green, the base produced into two longer or shorter ears, which sometimes form obtuse, spreading spurs. *Cymes* umbellately spreading from the top of the stem, or more rarely paniculately arranged along its upper half, three to six inches long, recurved, slender, very many-flowered, erect in fruit. *Flowers* nearly half an inch in diameter, quite sessile, 8-merous, except the central one in the forks, which is 10-merous; bracts linear, green, nearly equalling the petals. *Sepals* ovate-lanceolate, obtuse. *Petals* twice as long, linear, subacute, rose-purple. *Stamens* shorter than the petals; anthers purple-brown. *Glands* small, square, emarginate. *Ovaries* rather shorter than the stamens, cylindric, oblong, narrowed into slender, subulate, suberect styles.—*J. D. H.*

Fig. 1, Leaf; 2, flowers ; 3, glands and carpels; 4, fruit:—*all magnified.*

SEDUM SEMPERVIVOIDES. HOUSELEEK-LIKE
SEDUM.

Class and Order.

DECANDRIA PENTAGYNIA.

Generic Character.

Cal. 5-fidus. *Cor.* 5-petala. *Squamæ nectariferæ* 5, ad basin germinis. *Caps.* 5.

Specific Character and Synonyms.

SEDUM *sempervivoides*; planifolium, foliis spathulato-ovatis acutis integerrimis pubescentibus, corymbo hemisphærico. *Fl. taurico-caucas.* 3. p. 313.

SEDUM *sempervivoides.* *Fischer in Herb. Gorenk.*

This species has entirely the habit of a SEMPERVIVUM, but in the number of stamens and capsules agrees with SEDUM. Modern botanists, who pay less regard to number, may choose to consider it to belong to the former genus rather than to the latter; but as we have hitherto adhered to the Linnean systematic arrangement, we, without hesitation, continue it under SEDUM.

The *stem* is about a span high, thickly covered with alternate, ovate, concave, acute, fleshy, purplish *leaves*, covered, as is the whole plant, with a close short pubescence. The *Rosulæ* are green, only tinged slightly with Purple. *Flowers* in a compound, paniced corymb, of a Purplish deep red colour. *Stamens* somewhat shorter than the corolla.

A hardy succulent, we believe never before figured. Native of Iberia, a country to the south of Mount Caucasus. Communicated by Mr. ANDERSON from the Chelsea garden, where it was introduced by Dr. FISCHER, superintendant of the Royal Botanic garden at Petersburg. Flowers in June, July, and August.



W. Pich. del. & lith.

TAB. 5358.

SEDUM SIEBOLDII.

Siebold's Stonecrop.

Nat. Ord. CRASSULACEÆ.—DECANDRIA PENTAGYNIA.

Gen. Char. Calyx pentaphyllus, foliolis ovatis, sæpius turgidis. Corollæ petala 5, perigyna, plerumque patentia. Stamina 10, perigyna. Squamulæ hypogynæ, integræ vel brevissime emarginatæ. Ovaria 5, libera, unilocularia, ovulis ad suturam ventralem plurimis. Capsulæ folliculares 5, liberæ, intus longitudinaliter dehiseentes, polyspermæ.—Herbæ vel suffrutices in temperatis totius orbis, imprimis tamen Europa et Asia media crescentes; foliis alternis, rarius oppositis, carnosius, teretibus vel planis, integerrimis aut rarius dentatis; floribus cymosis, albis purpureis vel ceruleis aut flavis, interdum tetra-heptapetalis, octotetradecandris; squamulis hypogynis integris, tunc a Sempervivis distinguendis. Endl.

SEDUM *Sieboldii*; suffruticosum, caulibus gracilibus subascentibus foliosis, foliis glaucis rubro-tinctis ternato-verticillatis orbiculari-cuneatis carnosius concavis grosse sinuato-dentatis, floribus composite cymosis purpureis, filamentis alternis brevioribus.

SEDUM *Sieboldii*. Sweet, Cat.

A very interesting species of *Stonecrop*, and very unlike any one known to me, which appears to have been introduced by Messrs. Henderson, Pine-apple Place, from Japan, in 1838, into our gardens, under the name of *Sedum Sieboldii*, of Sweet; and such a name is in garden catalogues, but I have failed to find any character or description. Its affinity is perhaps with *Sedum ternatum* of North America, and the habit is a good deal that of *S. Anacampseros*. There is in Thunberg's 'Flora Japonica,' p. 350, under "Plantæ obscuræ," a "*Sedum*, n. 2, foliis subrotundis crenatis. Caulis filiformis, flexuosus, erectus, uti planta tota glaber. Folia opposita, sessilia, suborbiculata, crenata, unguicularia;" which, but for the "folia opposita," I might have been disposed to consider the same as this. The leaves are very beautiful, quite glaucous, with a deep tinge of purple-red, and so concave that they resemble the half of a bivalve shell.

JANUARY 1ST, 1863.

It flowers readily in a cool greenhouse, and would probably bear the open air.

DESCR. Perennial. *Stems* six to eight inches long, slender, weak, in our plants ascending or subdecumbent, simple, slender, leafy at every joint. *Leaves* ternately verticillate, broad, rotundato-cuneate, concave above, convex beneath, crenato-dentate at the very obtuse apex, very glaucous, and strongly tinged with reddish-purple, especially the inferior leaves; upper leaves gradually smaller. *Cymes*, compound, terminal, rather bright rose-purple; *calyx* small, of five fleshy sepals. *Petals* thrice longer than sepals, ovate, spreading. *Stamens* longer than the petals. *Filaments* filiform, alternately shorter. *Pistils* five; *germens*, ovate, tapering into the moderately long style. *Stigma* punctiform.

Fig. 1. Flower,—*magnified*.



TAB. 7908.
SEDUM STHALII.
Native of Mexico.

Nat. Ord. CRASSULACEÆ.

Genus SEDUM, Linn. (*Benth. and Hook. f., Gen. Pl., vol. i. p. 659.*)

SEDUM *Stahlii*; herba perennis, multicaulis, dense ramosa, caulibus vel ramis florigeris erectis vel adscendentibus graciliusculis foliisque primum minutissime puberulis 4–6 poll. longis, foliis oppositis vel suboppositis sessilibus crassis carnosis oblongo-ovoideis ellipticisve $\frac{1}{4}$ – $\frac{1}{2}$ poll. longis ambitu circiter $\frac{3}{4}$ poll. rubescentibus vel rubiginosis, floribus pentameris luteis 7–9 lin. diametro in cymas terminales pauciramosas dispositis, cymæ ramulis recurvis, pedicellis brevissimis, sepalis puberulis subcarnosis erectis lineari-oblongis obtusis petalis saltem dimidio brevioribus, petalis lanceolatis dorso infra apicem corniculatis divaricatis, staminibus 10 erectis petalis brevioribus, disci squamis truncatis, carpellis 5 clavatis glabris.

S. *Stahlii*, Solms; *Rehnelt in Gartenwelt*, 1902, p. 316, ex *Wiener Illustrierte Gartenzeitung*, 1902, p. 220.

This *Sedum* was sent by Professor Count H. von Solms Laubach to the Royal Botanic Gardens, Kew, in May, 1900, for identification, with the information that it had been collected in Mexico by a Mr. Stahl, of Jena, and had been in cultivation several years without producing flowers. He was informed that it was different from anything at Kew, either in the herbarium or garden. Thereupon he sent a living plant to Kew, with the name *S. Stahlii*; yet he does not appear to have published a description of the plant. In an editorial paragraph in the *Wiener Gartenzeitung*, cited above, it is stated that a Mr. Rehnelt had described it in the *Gartenwelt* (1902, p. 316), a publication to which I have not access at the present time; therefore the description has been wholly drawn up from the plant that flowered at Kew. Count Solms states, in his original communication concerning this species, that the leaves readily fall off, when a bud is soon formed at the base and develops into an independent plant. I have not been able to ascertain whether the foundation of this bud is formed before the leaf falls, but I think it is quite probable that it is. *S. Stahlii* is a very rapid growing species, speedily forming a carpet, planted out or in

AUGUST 1ST, 1903.

shallow pans, and is suitable for a greenhouse. The genus *Sedum* comprises about 150 species, spread all round the northern hemisphere, and about thirty are known to inhabit Mexico. They present great variety in habit and aspect, from the lowly *S. cupressoides* to *S. dendroideum*, an erect, branching shrub.

Descr.—A trailing, much-branched, succulent, obscurely puberulous, perennial herb, with erect or ascending flowering-stems, four to six inches high. *Leaves* opposite, or sub-opposite, sessile, slightly flattened at the point of attachment, longer than the internodes, thick, fleshy, ovoid or ellipsoid in shape, a quarter of an inch to half an inch long, and about three-quarters of an inch in girth, becoming red-brown. *Flowers* yellow, pentamerous, seven to nine lines in diameter, arranged in few-branched, terminal cymes; branches of the cymes recurved; pedicels very short. *Sepals* puberulous, somewhat fleshy, erect, linear-oblong, obtuse, scarcely half as long as the petals. *Petals* lanceolate, with a short, dorsal, horn-like appendage just below the apex, spreading horizontally from below the middle. *Stamens* ten, erect, shorter than the petals. *Carpels* clavate, glabrous.—*W. B. H.*

Fig. 1, a leaf; 2, a flower-bud; 3, an expanded flower; 4 and 5, stamens; 6, disk and gynæceum:—*all enlarged.*



(1977)

SEDUM TERNATUM. PURSLANE-LEAVED
STONE-CROP.

Class and Order.

DECANDRIA PENTAGYNIA.

Generic Character.

Cal. 5-fidus. *Cor.* 5-petala. *Squamæ* nectariferæ 5, ad basin germinis. *Caps.* 5.

Specific Character and Synonyms.

SEDUM *ternatum*; (pumilum repens) foliis planis rotundato-spathulatis ternis, cyma subtristachya, floribus sessilibus octandris. *Pursh Fl. Am. Sept.* 1. p. 324.

SEDUM *ternatum*; (pumilum repens) foliis planis rotundato-spathulatis ternis, cyma subtristachya, floribus albidis. *Michaux Fl. Bor.-Amer.* 1. p. 277. *Persoon Syn.* 1. p. 512. *Bot. Reg.* 142.

SEDUM *ternatum*; foliis verticillatis obovatis integerrimis glabris, cyma subtristachya. *Hort. Kew. ed. alt.* 3. p. 112.

SEDUM *anuum*, caule compresso, foliis obverse-ovatis. *Gron. Virg. ed.* 2. p. 71.

SEDUM *saxatile* floribus albis, foliis succulentis subrotundis, caule rubente. *Clayt. Herb. n.* 891.

There is a considerable affinity in this species to SEDUM *oppositifolium* of this work (No. 1807), and still greater to SEDUM *stellatum*. In all of these the flowers are white, and in the two first, at least, this colour extends to the germen. The leaves on the flowering stems of SEDUM *ternatum*, frequently, but not always, grow by threes, sometimes they are alternate, and now and then opposite; but the most remarkable character is tat of its dropping a fifth of the parts of
the

the flower, having only four segments to the calyx, the same number of petals and germens, and eight stamens.

It was this circumstance that induced the late Mr. CURTIS to give it the name of *deficiens*, under which appellation it entered the early editions of DONN's Hortus Cantabrigiensis.

It is a native of North-America, is perfectly hardy, and well suited to adorn rock-work; and when in blossom, the bright orange color of the anthers when bursting, contrasted with the white flowers, gives it a lively appearance. Is easily propagated by its creeping shoots. Flowers with us, as in America, in May and June.

Communicated by N. S. HODSON, Esq, late of the War-Office, but now of Bury St. Edmunds, where he continues to prosecute his botanical pursuits with the same ardour in a more favourable soil,



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SEMPERVIVUM ARACHNOIDEUM. COBWEB
HOUSELEEK.

Class and Order.

DODECANDRIA DODECAGYNIA.

Generic Character.

Cal. 12-partitus. *Petala* 12. *Capf.* 12. polyspermæ.

Specific Character.

SEMPERVIVUM *arachnoideum* foliis pilis intertextis, propaginibus globosis. *Linn. Syst. Vegetab. p.* 456.

SEDUM montanum tomentosum. *Bauh. Pin.* 284.

By the old Botanists, this plant was considered as a *Sedum*; and to this day it is generally known in the gardens by the name of the *Cobweb Sedum*, though its habit or general appearance, independent of its fructification, loudly proclaims a *Houseleek*.

In this species the tops of the leaves are woolly; as they expand they carry this woolly substance with them, which being thus extended, assumes the appearance of a cobweb, whence the name of the plant.

Like most of the Houseleeks it is best kept in a pot, or it will grow well and appear to great advantage on a wall or piece of rock-work; the more it is exposed to the sun, the more colour will enliven its stalks and foliage, and the more brilliant will be its flowers; the latter make their appearance in July.

It is propagated by offsets which it sends forth in abundance.

It is no uncommon practice to treat this beautiful species of Houseleek, as a native of a warm climate; under such an idea we have seen it nursed up in stoves, while the plant spontaneously braves the cold of the Switzerland Alps.

N^o 507



SEMPERVIVUM GLOBIFERUM. GLOBULAR
HOUSELEEK.

Class and Order.

DODECANDRIA DODECAGYNIA.

Generic Character.

Cal. 12-partitus. *Petala* 12. *Caps.* 12. polysperm.

Specific Character and Synonyms.

SEMPERVIVUM *globiferum*, foliis ciliatis, propaginibus globosis. *Spec. Plant.* 665. *Edit. Willdenow*, 952. *Jacquin Aust.* 5. p. 50. *tab. app.* 40.

SEDUM rofulis ciliatis, petalis, fubulato-lanceolatis duodenis. *Haller Hist. n.* 950.

SEDUM majus vulgari simile, globulis decidentibus. *Morison*, 3. p. 472. f. 12. t. 7. f. 18.

This plant being a native of Russia and Germany, is perfectly hardy, easily bearing our winters in any dry situation.

Like most succulent plants, it grows best in a dry light soil such as loam mixed with lime rubbish, &c.

We are told by Mr. AYTON, that it was cultivated by Mr. PHILIP MILLER in 1731, but was probably lost from our gardens till it was again introduced by the late Mr. CURTIS.

It flowered for the first time in the Brompton Botanic Garden last summer.



SEMPERVIVUM GLOBIFERUM, α . VILLOUS
GLOBULAR HOUSELEEK.

Class and Order.

DODECANDRIA DODECAGYNIA.

Generic Character.

Cal. 12-partitus. *Petala* 12. *Capsulæ* 12, polyspermæ.

Specific Character and Synonyms.

SEMPERVIVUM *globiferum*; foliis ciliatis, propaginibus sub-globosis laxiusculis, flagellis foliosis.

(α .) villosum, pallidum, petalis duodenis.

(β .) glabrius, viridius, petalis, suboctodecim. *Supra* No. 507.

SEMPERVIVUM *globiferum*; foliis ciliatis, propaginibus globosis. *Willd. Sp. Pl.* 2. p. 932. exclusis synonymis *Milleri*, *Schmideli* et *Morisoni*, quæ ad nostrum *soboliferum* (No. 1457) pertinent; necnon *Knorri*, cujus figura *S. tectorum* designat.

SEMPERVIVUM rosulis hirsutis, ciliatis, petalis subulato lanceolatis duodenis. *Hall. Hist. n.* 950.

SEDUM vulgari magno simile. *Bauh. hist.* 3. p. 688.

It is not improbable that LINNÆUS, in the first instance, under the name of *globiferum*, had in view the Hen and Chicken Houseleek, our *soboliferum* (*vide* No. 1457). This, however, is rendered doubtful by his quoting a figure in *Bauhin's* History, which is probably a representation of our plant; but the synonyms of MILLER and MORISON undoubtedly belong to *soboliferum*. But however this may be, JACQUIN's and HALLER's plants, above quoted, being both added as synonyms of *globiferum*, in the 14th edition of the *Systema Vegetabilium*, and continued by WILLDENOW, it seems best to retain the name now so generally applied to this species, and accordingly we published SCHMIDEL's and MORISON's plant, under the name of *soboliferum*.

In

In *globiferum* the young rosettes are all produced by stoutish runners clothed with leaves, very like those of the flowering stem, only smaller, but in *soboliferum* small globular rosettes grow on very slender threads, which soon break and suffer them to roll off, making distinct plants, not at all connected with the mother plant; but some larger and less globular rosettes are produced on runners; these are however, generally, perhaps always, without leaves.

We received our present plant from Mr. WILLIAM KENT's collection, at Clapton, in June last, by the name of *hirtum*, but we consider it as only a variety of *globiferum* before figured; from which, however, it differs in the smaller size of the flowers; in the petals being only twelve in number; in the whole plant being more villous and of a paler colour, especially the leaves of the flowering stems. In all these respects it corresponds better with JACQUIN's figure; on which account we consider it as variety (α .) and our former figure as representing var. (β .)

SEMPERVIVUM *montanum* appears to approach very near to our present plant, except in the colour of the flowers, which is a purplish red.



(1963)

SEMPERVIVUM GLUTIOSUM. CLAMMY
HOUSELEEK.

Class and Order.

DODECANDRIA DODECAGYNIA.

Generic Character.

Cal. 8–12-partitus. *Petala* 8–12. *Caps* 8–12, polyspermæ.

Specific Character and Synonyms.

SEMPERVIVUM *glutinosum*; foliis cuneiformibus viscidis ciliatis: ciliis cartilagineis adpressis. *Hort. Kew. ed.* 1. 2. p. 147.—*ed. alt.* 3. p. 172. *Willd. Sp. Pl.* 2. p. 931. *Martyn Mill. Dict. n.* 3.

DESCR. *Stem* shrubby. *Leaves* collected together at the extremities of the branches, fleshy, wedge-shaped, acuminate, very convex underneath, flattish above, edged with cartilaginous teeth, slightly clammy. *Inflorescence*, a spreading panicle: *branches* alternate, very divaricate, rounded, and extremely clammy. *Bractes* fleshy, ovate, convex underneath, flattish above. *Pedicles* shorter than the flower. *Calyx* 8—9-cleft. *Petals* yellow, equal in number to and alternating with the segments of the calyx. *Stamens* double the number of the petals, opposed to and alternating with them. *Germens* 8—9, but not always corresponding in number with the petals. *Nectaries* as many, very small, emarginate.

Native of Madeira. Found by Mr. FR. MASSON. Introduced in 1777. Flowers in July, August, and September. Requires to be kept from frost and damp air. Propagated easily by cuttings, which should be suffered to lie in a dry place, after their separation, some weeks before they are planted.

Our

Our drawing was made from a plant communicated by Mr. GEORGE GRAVES. Our description taken from one communicated in September 1816, by Messrs. WHITLEY, BRAME, and MILNE, of the Fulham Nursery. We are not aware that any figure has been before given of this species, which was first described in the original edition of AITON's Hortus Kewensis.



TAB. 6610.

SEMPERVIVUM MOGGRIDGEI.

Native of the Alpes Maritimes.

Nat. Ord. CRASSULACEÆ.

Genus SEMPERVIVUM, Linn.; (*Benth. et Hook. f. Gen. Pl. vol. i. p. 660.*)

SEMPERVIVUM (Rhodanthe) *Moggridgei*; rosulis diam. 2 poll. polyphyllis, foliis elongato-cuneatis v. oblanceolatis pallide viridibus apicibus pilis copiosis arachnoideis connexis superne glabris marginibus minutissime ciliatis, caulibus 4–6-pollicaribus erectis robustis, foliis caulinis et inflorescentia dense glanduloso-pilosis viridibus, foliis caulinis inferioribus suberectis oblanceolatis cuspidatis apicibus barbatis pallide viridibus rubro tinctis, superioribus lineari-oblongis, cyma ter quaterve furcata multiflora, bracteis lanceolatis foliaceis, floribus $\frac{2}{3}$ poll. diam. 10–12-meris roseis, sepalis lineari-oblongis obtusiusculis pubescentibus, petalis lanceolatis acuminatis ciliolatis, staminibus petalis $\frac{1}{2}$ brevioribus, filamentis rubris, antheris breviter oblongis purpureis, polline citrino, ovariis pubescentibus, glandulis hypogynis minutis.

S. *Moggridgei*, *Hort. De Smet*.

The species of *Sempervivum* are by no means easily distinguished, and in many of the groups of the genus they tend to “run into one another,” as botanists express it, and have considerable ranges; whilst in other cases exceedingly distinct species occupy very restricted areas in the mountains of Southern Europe. The subject of the present plate does not agree with any of the one hundred and four forms enumerated by Mr. Baker in the *Gardeners’ Chronicle* (1874, p. 103), and which he has wisely reduced to thirty-three definably distinct species in the *Chronicle* for 1879. Amongst these latter the nearest ally of *S. Moggridgei* is clearly the well-known *S. arachnoideum* of Linnaeus, one of the earliest plants figured in this work (Tab. 68), and which extends from the Pyrenees to the Tyrolese Alps. It differs from *S. Moggridgei* in the much shorter leaves of the rosette, which are more oblong, and form a rounder mass, in the oblong obtuse cauline leaves, and in the smaller and less numerous flowers and glabrous

FEBRUARY 1ST, 1882.

filaments. These are, however, all differences of degree, and I cannot but expect that *S. arachnoideum* and *Moggridgei* will prove to be local forms of one species, of which the latter is the much handsomer plant. The specimen here figured flowered in the Royal Gardens in September, 1881, and was received under the name it bears from Mr. De Smet. It is a native, I believe, of the Maritime Alps.

DESCR. *Rosettes* two inches in diameter, of many (about one hundred) leaves, of which the outer are spreading or recurved, the inner erect, all connected by a web of white hairs proceeding from their tips. *Leaves* three-fourths of an inch long, elongate-cuneate or oblanceolate, green, glabrous, with minutely ciliate margins and acute tips. *Flowering-stems* a span high, stout, leafy, and, as well as the cauline leaves and inflorescence, clothed with glandular pubescence. *Lower cauline leaves* oblanceolate, three-fourths of an inch long, suberect, ciliate, tips bearded, pale green and reddish; upper more oblong. *Cyme* three to four times forked, with spreading branches; bracts linear-oblong, green, fleshy. *Flowers* three-fourths of an inch in diameter, ten- to twelve-merous. *Calyx* cylindrically cup-shaped, glandular-pubescent; sepals linear, obtuse. *Petals* twice as long as the sepals, spreading, lanceolate, acuminate, apiculate. *Stamens* half as long as the petals, filaments bright red, glabrous; anthers shortly oblong, purple, with yellow pollen. *Hypogynous glands* minute, square. *Ovaries* lanceolate, glandular-pubescent, with suberect styles more than half their own length.—*J. D. H.*

Fig. 1, Calyx; 2, stamens; 3, ovaries :-all enlarged.



SEMPERVIVUM MONANTHES. DWARF
HOUSELEEK.

Class and Order.

DODECANDRIA DODECAGYNIA.

Generic Character.

Calyx 12-partitus. *Petala* 12. *Capsulæ* 12. polypermæ.

Specific Character and Synonyms.

SEMPERVIVUM *monanthes* foliis teretibus clavatis confertis, pedunculis nudis subunifloris, nectariis obcordatis. *Aiton. Hort. Kew.*

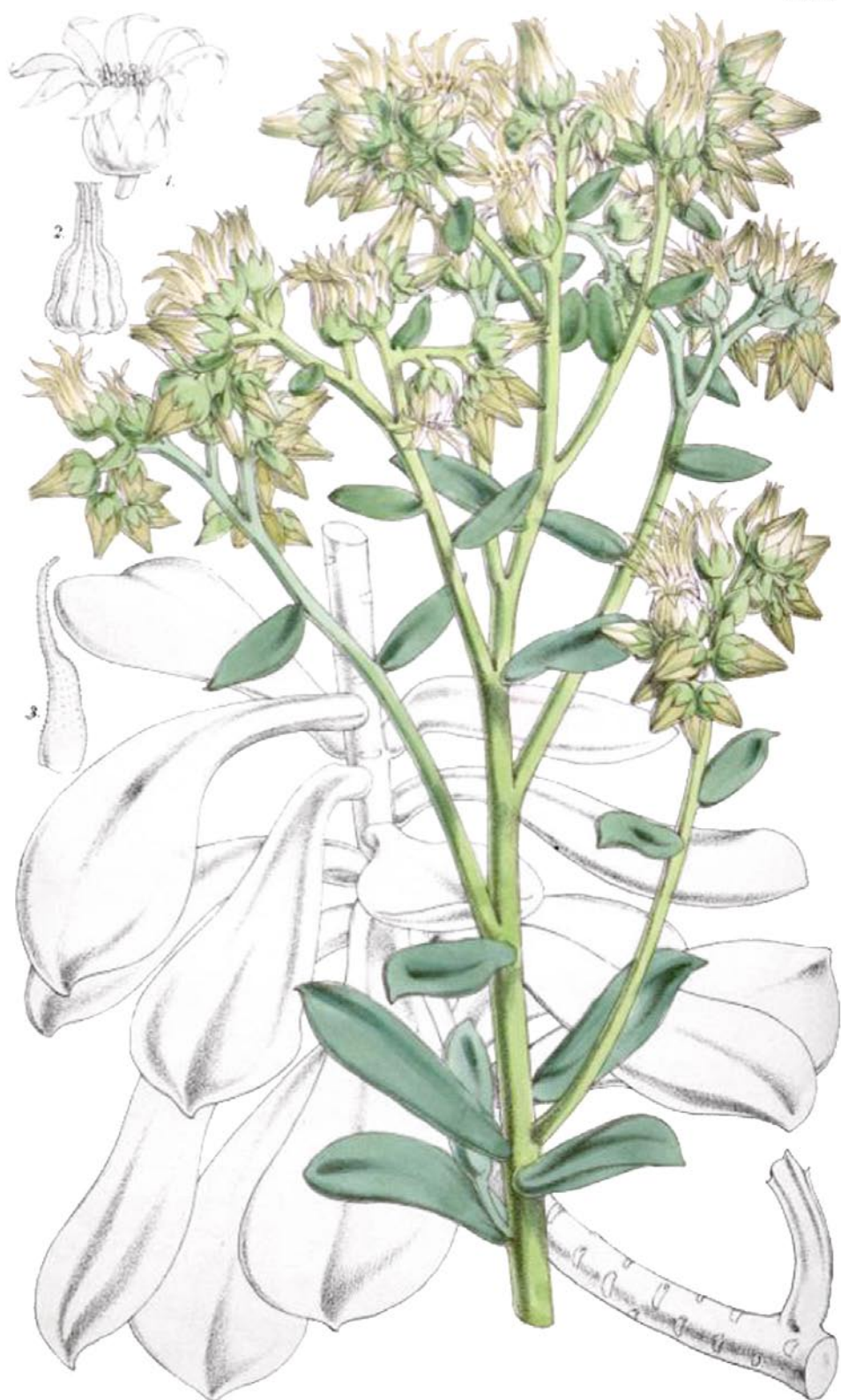
It appears from the *Hortus Kewensis*, the publication of which is daily expected, that the plant here figured was first brought to this country from the Canary Islands, by Mr. FRANCIS MASSON, in the year 1777.

It is highly deserving the notice of the Botanist, not only as being by far the least species of the genus, but on account of its Nectaria; these, though not mentioned by LINNÆUS in his character of the genus, have been described by other authors, particularly JACQUIN and HALLER; and though not present in most, and but faintly visible in a few species of *Sempervivum*, in this plant form a principal part of the fructification; they are usually seven in number, but vary from six to eight.

In the specimens we have examined, and which perhaps have been rendered luxuriant by culture, the number of stamina has been from twelve to sixteen; of styles, from six to eight; of flowers on the same stalk, from one to eight.

It flowers during most of the summer months, succeeds very well with the common treatment of a greenhouse plant in the summer, but does best in a dry stove in the winter.

Is readily increased by parting its roots.



SEMPERVIVUM PAIVÆ

Baron Paiva's House-leek.

Nat. Ord. CRASSULACEÆ.—DODECANDRIA DODECAGYNIA.

Gen. Char. Calyx 6-∞-fidus v. -partitus. Petala 6-∞, libera v. basi conata filamentisque adherentia, oblonga v. lanceolata, acuta v. acuminata. Stamina numero petalis duplo v. rarius æqualia, libera, filamentis filiformibus; antheræ didymæ v. ovatæ. Squamulæ variæ. Ovarii carpella tot quot petala, libera v. basi v. ad medium in calycis tubum immersa, in stylos filiformes attenuata, stigmatibus capitellatis; ovula in carpellis ∞, placentis marginalibus v. intrusis affixa. Folliculi ∞-spermi.—Herbæ v. suffrutices, carnosæ, acaules v. caulescentes. Folia alterna, sæpe revoluta. Cymæ paniculatæ. Flores albi rosei virides flavi v. purpurascentes.

SEMPERVIVUM *Paivæ*; "fruticosum, glaucum, ramis subelongatis debilibus declinatis v. decumbentibus subtortuosis nudis, sursum laxè rosulato-foliosis, foliis spathulatis abrupte acutis v. mucronulatis, ramorum steriliùm distincte serrulatim cartilagineo-ciliolatis, floralium integerrimis, novellis floralibusque minute velutinis, ceteris glaberrimis, panicula late breviterque thyrsoidè laxa omnino glanduloso-velutina, floribus 7-8-meris, petalis (virentibus) ligulato-acuminatis, apicibus recurvis unilateraliter contortis filamentisque deorsum incrassatis glanduloso-velutinis, antheris cordato-globosis muticis, glandulis hypogynis glabris transverse quadrato-oblongis rectilineari-truncatis integerrimis." *Lowe*.

SEMPERVIVUM *Paivæ*. *Lowe, mss.*

This hitherto undescribed species of House-leek was brought to the Royal Gardens by my friend the Rev. R. T. Lowe, M.A., F.L.S., who discovered it in the island of Gomera, one of the Canary group, and whose excellent description I herewith append:—

"I met with several plants of this *Sempervivum* (*Æonium*, Webb) in April, 1861, on walls a mile or two above the church in the valley of Hermigua, on the north side of Gomera, on my second few days' visit to that long-neglected island, so interesting in the grandeur of its scenery and richness of botanical productions. They were not in flower; but perceiving them to differ from other Canarian species, I

AUGUST 1ST, 1866.

brought away several plants, some of which have since flowered in Madeira, under the care of Sir J. M. Moniz, and other two are now flowering with me here in England.

"The species belongs to the same group as *S. urbicum*, C. Schm., *S. ciliatum*, Willd., and *S. Haworthii*. W. B., approaching nearest the two latter and especially the last; but it is perfectly distinct from all in habit and from each in various other characters. Its name is a just tribute to the unwearied zeal of the Barão do Castello de Paiva in promoting, both personally and by kind offices towards others, the investigation of the botany, malacology, and entomology of the Canaries.

"DESCR. A straggling tortuously branched low shrub, with a short erect stem, and long weak, slender, curved or crooked, pendent ascending or declining branches, 1–2 feet long, which are naked, woody and ashy-greyish downwards, with brown leaf-scars, fleshy, glaucous and leafy upwards, emitting occasionally aerial, brown, fibrous, pendent roots. *Leaves* highly glaucous, 1–2½ inches long, ½–1 inch broad, those of the flowering branches thick and fleshy, of the barren thinner and finely serrulato-ciliate, the cilia white, short, acute, irregular and obsolete or wholly evanescent on the older leaves and flowering branches. *Panicle* terminal, ascendently erect, 6–8 inches long and broad, minutely but thickly glandular-pubescent and slightly viscid, leafy; *branches* subelongate, erecto-patent, leafy, ending in forked cymes. *Inflorescence* and *flowers* (except the squamulæ and lower halves of ovaries) glandular-pubescent. *Flowers* rather large, green, scentless, pyramidally conoidal in bud, ½ inch long, in flower ¾ inch broad. *Sepals* bright-green, fleshy, ovate, ⅙ inch long. *Petals* three times the length of the sepals, ⅓ inch broad, narrow-acuminate, erecto-patent, tips recurved and spirally curved or twisted to one side both in bud and flower, pale-green, white downwards. *Stamens* erect or subincurved and connivent, not above half the length of the petals; *filaments* white, gradually thickened and obcompressed downwards; *anthers* pale or whitish, retuse, not apiculate. *Scales* incisor-tooth-like, short, transversely oblong, nearly twice as broad as high, rectilineally truncate, with a broad, flat edge, perfectly entire, smooth, and shining. *Lower half of ovaries* smooth, shining, *upper* glandular-pubescent; *styles* erect, glandular-pubescent; *stigmas* recurvedly patent; the whole white, forming an urceolate or inverted funnel-shaped column, $\frac{2}{3}$ – $\frac{3}{4}$ the length of the stamens."—*R. T. Lowe*.

Nigra.



Tab. 17. S. Cardus Maritimus. 1791. 1792.

1791. 1792.

(1980)

SEMPERVIVUM SMITHII. HISPID-STEMMED
HOUSELEEK.

Class and Order.

DODECANDRIA DODECAGYNIA.

Generic Character.

Cal. 9–12-partitus. *Petala* 8–18. *Caps* 12, polyspermæ.

Specific Character and Synonyms.

SEMPERVIVUM *Smithii*; caule frutescente foliis obovatis acuminatis plano-convexis subtus maculatis hispido, ramis oriferis confertifloris apice revolutis.

A small deciduous shrub with very divaricate branches, extremely prolific in blossoms, which are yellow, have usually twelve petals, eighteen stamens, and twelve pistils. The leaves are spotted on the underside only, and when these fall off, there remains along the lower edge of the cicatrices a row of stiff hairs. After the falling of the leaves the hairiness increases and the stem becomes generally hispid.

SEMPERVIVUM *Smithii* was detected at the same time as *eliatum*, by Professor SMITH, in the island of Teneriffe, and flowered under the care of Mr. ANDERSON last September, in the Chelsea garden.

The Professor did not send any specific name with it, we have therefore thought it a duty incumbent on us, to give to it that of the discoverer; believing that no one will, in this case, object to applying the name of a botanist even to a species, especially when the generic name of SMITHIA is already and most worthily preoccupied; thus leaving no other way of giving the “*unicum botanicorum præmium*” so well due to this martyr to the science, as LINNÆUS has styled such as have unfortunately perished in the pursuit of their favourite study.

Requires to be protected from frost and damp by the dry stove or a good greenhouse.

N^o 1457.



J. A. Edwards Del

Pub by S. Parker Walworth Apr 1 1860.

J. S. Sargent Sc.

SEMPERVIVUM SOBOLIFERUM. HEN AND
CHICKEN HOUSE-LEEK.

Class and Order.

DODECANDRIA DODECAGYNIA.

Generic Character.

Calyx 12-partitus. *Pet.* 12. *Capf.* 12. polyspermæ.

Specific Character and Synonyms.

SEMPERVIVUM *globiferum*; propaginibus globosis decidentibus, petalis fenis erectis fimbriatis, foliis caulinis lanceolato-ovatis imbricatis.

SEMPERVIVUM petalis fimbriatis, fobole compacta. *Schmid. Ic.* 95. *t.* 26.

SEDUM majus vulgari simile, globulis decidentibus. *Morif. Hist.* 3. *p.* 472. *f.* 12. *t.* 7. *f.* 18. quoad descriptionem, figura vero vix quadrat.

SEDUM vel SEMPERVIVUM majus foliis acutis, floribus albis. *Weinm. Phyt.* 4. *t.* 913.

In the *Enumeration* of the plants contained in the first twenty volumes of this work, published with the general indexes, we acknowledged the receipt of a letter from Mr. JONATHAN WILSON, of Congleton, in which the writer states that our figure of SEMPERVIVUM *globiferum*, No. 507, does not belong to the SEDUM *majus globulis decidentibus* of MORISON; which observation we found to be quite correct. The fact is, that LINNÆUS confounded two distinct species under the name of *globiferum*, which mistake has been continued by most or all Botanists since; although the one has almost constantly fix, the other twelve petals, with double the number of filaments, and both are in almost every other respect unlike.

The

The Hen and Chicken is so called from the numerous globular offsets which come out on slender threads from every part of the mother plant, and falling off, take root and become so many distinct plants. The increase is so great in this way, that the propagation by seeds becomes unnecessary, and therefore the plant may be kept for many years together without throwing any disposition to throw up flowering stems; but if the young offspring are constantly taken off, and only one, or at most two or three of the rosettes, connected by larger runners, are suffered to remain, the plant will generally flower in the course of the following summer.

The species most nearly allied to, and perhaps hardly sufficiently distinct from this, is the *hirtum*; *SEMPERVIVUM petalis fimbriatis sobole patula*, of SCHMIDEL. *SEMPERVIVUM soboliferum* is much more common with us than *globiferum*, and the one cultivated by MILLER, in 1773, probably belongs to the former.



TAB. 6055.

SEMPERVIVUM TECTORUM, VAR. ATLANTICUM.

Native of the Greater Atlas.

Nat. Ord. CRASSULACEÆ.

Genus SEMPERVIVUM, Linn.; (*Benth. et Hook. f. Gen. Pl.* vol. i. p. 660.)

SEMPERVIVUM *tectorum*, var. *atlanticum*; foliis rosularum obovato-oblongis apice breviter acuminatis utrinque breviter glanduloso-pubescentibus margine ciliatis caulinis oblongo-lanceolatis, superioribus cymisque glanduloso-pubescentibus, calyce infra medium fisso, staminibus omnibus perfectis virgineis obscure viridibus, squamis hypogynis minutissimis glandulosis, carpellis divergentibus toro elevato suffultis et a verticillis exterioribus squamis exceptis omnino discretis staminibus æqui-longis.

SEMPERVIVUM *tectorum*, Linn. var. *atlanticum*, Ball, in *Trimen. Lond. Journ. Bot.*, 1873, *ined.*

The Common Houseleek is so polymorphous a plant that many species have been made of its various forms, which differ remarkably in beauty, brightness of colour, and value in a horticultural point of view. Of these the present is one of the handsomest and most distinct, so much so that Mr. Ball has doubtfully proposed it as a sub-species. It was discovered by Messrs. Ball Maw, and myself, on rocks in the valley of Ait-Mesan in the Greater Atlas, at an elevation of about 5000 feet, and flowered on the rockwork in Kew in June of the present year. Its bright star-like flowers, with white petals, having a broad ruby-coloured central stripe, gave it a very sparkling appearance. Like the Common Houseleek it is easily propagated, and should replace its duller coloured prototype in general estimation.

DESCR. *Rosettes* three to four inches across. *Leaves* two inches long, bright green, obovate-oblong oblanceolate or obovate-spathulate, very shortly mucronate, more or less glandular-pubescent on both surfaces, margin ciliate, tips reddish; cauline leaves oblong-lanceolate, upper glandular-pubescent, all turning a brilliant vinous red-purple as the flowers begin to expand. *Cyme* dichotomous, densely

SEPTEMBER 1ST, 1873.

glandular-hairy, many-flowered, spreading. *Flowers* one and a quarter to one and a half inches in diameter. *Calyx* subspherical, densely hairy, divided three-fourths of the way down into twelve oblong acuminate green segments. *Petals* spreading, narrow linear, acuminate, white, with a broad, bright red-purple median band. *Stamens* all perfect; anthers dull green before bursting. *Hypogynous* glands very small, glandular. *Carpels* erect, equalling the stamens, raised on a lobed disk considerably within the staminal whorl, green; styles subulate, slightly recurved.—*J. D. H.*

Fig. 1, Leaf; 2, calyx and carpels; 3, carpels and hypogynous glands:—*all magnified.*

N. 296



Pub. by W. Curtis Sc. Geo. Crispent. Apr. 1. 1795.

SEMPERVIVUM TORTUOSUM. GOUTY
HOUSELEEK.



Class and Order.

DODECANDRIA DODECAGYNIA.

Generic Character.

Cal. 12-partitus. *Petala* 12. *Capfulæ* 12 polyspermæ.

Specific Character.

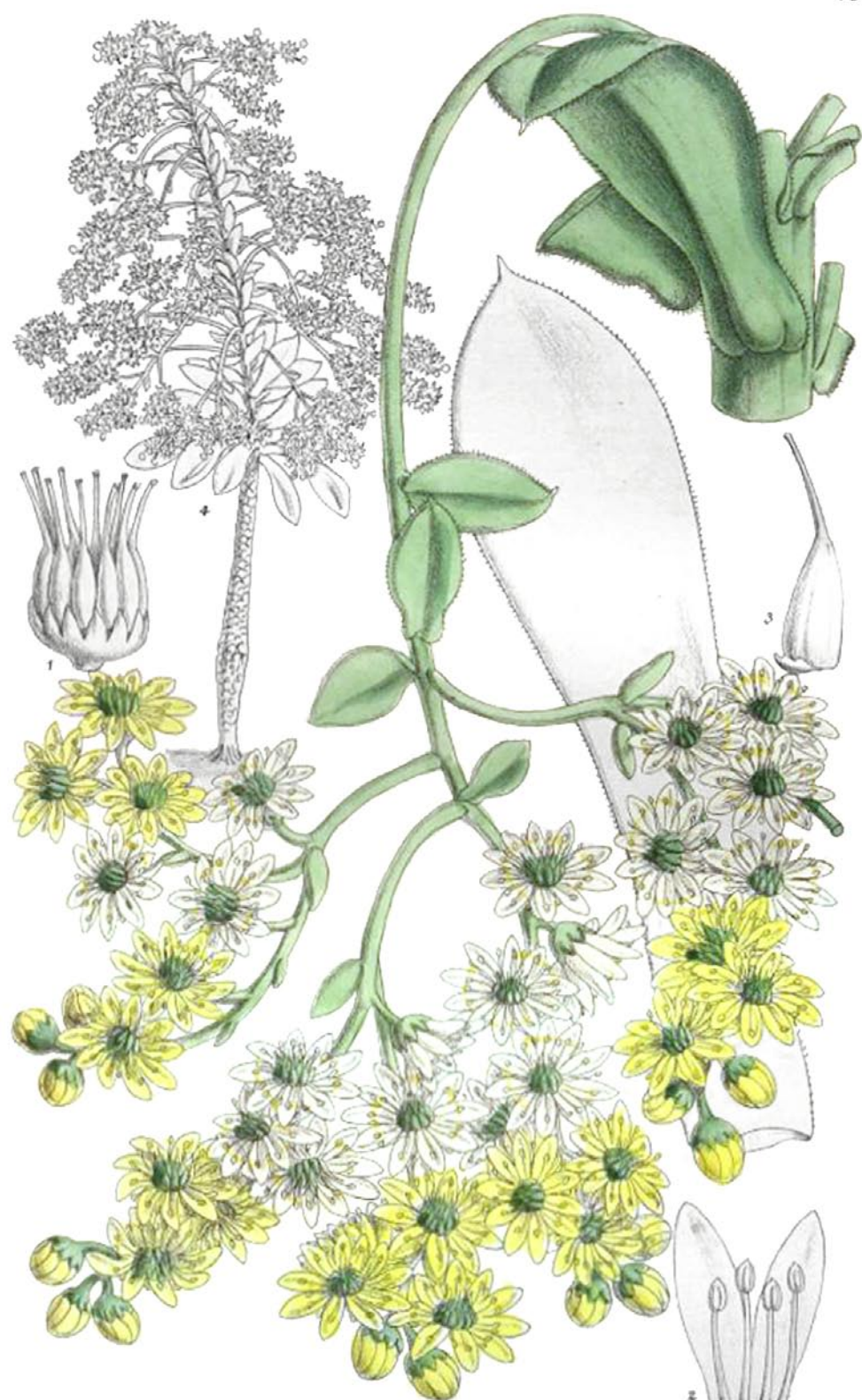
SEMPERVIVUM *tortuosum* foliis obovatis fubtus gibbis
villosis, nectariis bilobis. *Alt. Kew. v. 2. p.*
148.

We know of no figure of this plant, the first, and only account of which is to be found in the *Hort. Kew*, of Mr. AITON there it is specifically described and from thence we discover that it was introduced from the Canary Island, where it is native, by Mr. MASSON, in 1779.

It is a shrubby plant of low growth, producing numerous fleshy leaves growing thickly together, which being ever-green, and making a pretty appearance the year through, render the plant worthy a place in all general collections at least, of greenhouse plants; and though it cannot vie with many of the more showy high-priced novelties, it is an abiding plant, not subject to casualties, while many of those are here to day and gone to morrow.

It throws up its flowering stems, supporting numerous, starry, stonecrop-like flowers, in July and August, and is most readily propagated by cuttings.

It is one of those species of Houseleek which connect the genera *Sedum* & *Sempervivum*.



TAB. 7893.
SEMPERVIVUM URBICUM.
Native of the Canary Islands.

Nat. Ord. CRASSULACEÆ.

Genus *SEMPERVIVUM*, Linn.; (*Benth. & Hook. f. Gen. Pl.* vol. i. p. 660.)

SEMPERVIVUM (*Æonium*) *urbicum*; fruticosum, caule erecto-1-3-pedali robusto cylindraceo inferne nudo, cortice cinereo, cicatricibus rhomboideis tessellato, foliis apicem versus caulis dense rosulatis 4-6 poll. longis 1-1½ poll. latis anguste spatulatis cuspidatis crassis glabris ciliato-serrulatis sessilibus, v. basi in petiolum tetragonum angustatis pallide viridibus, subtus costa lata percursis, panicula magna pyramidali 2-3-ped. alta, ramis patenti-decurvis gracilibus basi foliaceo-bracteatis longe nudis apices versus ramulosos et foliis paucis parvis ovatis instructis viridibus multifloris, floribus ¾ poll. diam. breviter pedicellatis pallide aureis, calyce cupulari breviter 8-10-dentato glaberrimo, petalis 8-10 oblongo-lanceolatis acutis, filamentis glabris filiformibus ima basi dilatatis, antheris oblongis apiculatis, disci glandulis quadratis, carpellis ad 10 erectis oblongis viridibus in stylos graciles ovario aquilongis attenuatis.

S. urbicum, *Chr. Smith, ex Hornem. Suppl. Hort. Hafn.* p. 60 (*non Lindl.*) *Haw. in Phil. Mag.* 1827. p. 125. *Buch, Phys. Besch. Canar. Ins.* p. 177. *DC. Prodr.* vol. iii. p. 411.

Æonium urbicum, *Webb & Berth. Phytogr. Canar.* vol. i. p. 194, t. 29.

The Atlantic Islands are remarkable for the number of indigenous species of *Sempervivum* which they contain, upwards of forty being enumerated in the "Index Kewensis" as natives of Madeira and the Canary Islands; a singular fact when it is considered that only one species has hitherto been collected in the adjacent territory of Morocco, and that a very different plant from any Canarian. On the other hand, nine species of *Sedum* are recorded from Morocco, and only one, the Mediterranean *S. rubens*, DC., from the Canary Islands.

Sempervivum urbicum is described by Webb as inhabiting rocks, walls, and roofs in the sylvan region of Teneriffe. The specimen here figured was presented to the Royal Gardens, Kew, by Mr. Van den Bosche, of Tirlemont, Belgium, in 1901. It flowered in the Succulent House in May, 1902.

Descr.—*Stem* erect, three feet high, simple, stout, cylindric, covered with rhomboidal leaf-scars. *Leaves*
MAY 1ST, 1903.

many, rosulate on the top of the stem, four to six inches long by one and a half broad, narrowly spathulate, cuspidate, very thick, fleshy, smooth, pale green, nerveless, margins erosely serrulate, sessile, or base contracted into a short, stout petiole. *Panicle* very large, pyramidal, three feet high, and nearly as broad; branches very many, close-set, spreading and decurved, with fleshy, oblong bracts at the base, naked below, bearing towards the terminal cymosely branched inflorescence a few small, ovate, sessile, fleshy leaves. *Flowers* shortly pedicelled, three-quarters of an inch broad. *Calyx* cupular, shortly eight- to many-toothed, glabrous, green. *Petals* lanceolate, acute, pale yellow. *Filaments* slender, dilated at the base; anthers small, oblong, apiculate. *Disk-glands* quadrate. *Carpels* ten; styles slender, erect, as long as the narrowly oblong ovary. —*J. D. H.*

Fig. 1, flower with the petals removed; 2, petals and stamens; 3, carpel:—all enlarged; 4, reduced view of whole plant.

(1809)

SEMPERVIVUM VILLOSUM. HAIRY HOUSELEEK.

Class and Order.

DODECANDRIA DODECAGYNIA.

Generic Character.

Cal. 8—12-partitus. *Petala* 8—12. *Caps.* 8—12, polyspermæ.

Specific Character and Synonyms.

SEMPERVIVUM *villosum*; foliis spathulato-cuneiformibus obtusis villosis, nectariis palmatis: lacinulis subulatis. *Ait Hort. Kew. ed. 1. v. 2. p. 148. edit. alt. 3. p. 171. Willd. Sp. Pl. 2. p. 933.*

SEMPERVIVUM *stellatum*; caule herbaceo pubescente, foliis spathulatis sparsis. *Trans. Linn. Soc. 1. p. 251. excluso synonymo Seguieri ?*

We have no doubt but that the plant here figured is the *SEMPERVIVUM villosum* of the first edition of AITON's Hortus Kewensis; having compared it both with specimens from the Kew Garden and a native one from Madeira. At the same time we suspect that it is also the same plant which Sir JAMES E. SMITH described in the first volume of the Transactions of the Linnean Society, under the name of *stellatum*. Our plant was some years since very common in the Chelsea Garden, and in that of the late Dr. PITCAIRN, at Islington; and, being an annual producing seeds readily, might be cultivated as hardy. Certainly the plant figured by SEGUIER as a native of Monte Baldo, appears to be very different, both from our plant and from Sir JAMES SMITH's description.

An annual plant. Native of the Island of Madeira. Flowers in the middle of summer, and ripens its seeds in August. Communicated by Mr. PRINGLE, of the Sydenham Nursery.



STAPELIA ASTERIAS. STAR-FISH
STAPELIA.

Class and Order.

PENTANDRIA DIGYNIA.

Generic Character.

Contorta. *Nectarium* duplici stellulâ tegente genitalia.

Specific Character and Synonyms.

STAPELIA *Asterias*; ramis pluribus erectis tetragonis dentatis, dentibus brevibus erectis, corolla magna quinquefida; laciniis lanceolatis margine revolutis ciliatis. *Masson. Stap. n. 14. t. 14.*

STAPELIA *Asterias*; corollis quinquefidis: laciniis ovato-acuminatis, margine revolutis, villosis, pedunculis longitudine corollæ, ramis erectis tetragonis attenuatis basi floriferis. *Spec. Plant. edit. Willdenow, 1. p. 1280.*

The flower of this very distinct species of *Stapelia* has a highly offensive smell, appearing to us, although we are not certain that the eye might not impose on the imagination, to approach to the stink of a putrid star-fish, as well as to resemble it in form. The specific character given by WILLDENOW is not so accurate as that of MASSON. In many respects it agrees with *hirsuta*, but differs in the shape of the corolla, in the want of hairs in the centre of the flower, and in the colours, which, though nearly the same, are reversed, the ground of the petal in the *hirsuta* being a pale yellow, and the transverse veins a dull purple.

We are obliged to Mr. LODDIGES, of Hackney, for the specimen from which our drawing was made, who imported it from the Cape of Good Hope, as he did likewise the one we before published, from Mr. WOODFORD's collection, under the name of *STAPELIA lentiginosa*, and which we by mistake derived from the Royal Garden at Kew. All the *Stapeliæ* are proper inhabitants of the dry stove, but succeed very well in the bark stove when placed on a shelf very near the window.



STAPELIA BARBATA. BEARDED STAPELIA.

Class and Order.

PENTANDRIA MONOGYNIA.

Generic Character.

Asclepiadea. Nect. duplici stellula tegente genitalia.

Specific Character and Synonyms.

Sect. I. *Corollis decemdentatis; alis nullis; rostris gibbosis; ligulis coalitis in scutum humile.* (Heuriæ Brown)

A. Fauce simplici

STAPELIA *barbata*; corollis campanulatis intus punctatis, foris impunctatis, dentibus majoribus cuspidatis, ramis strictis tetragonis. *Jacq. Stap.*

STAPELIA *barbata*; corollis decemdentatis: laciniis majoribus lanceolatis acuminatis scabris clavato-barbatis, pedunculis corolla brevioribus, ramis subtetragonis erectis basi floriferis. *Willd. Sp. Pl. 1 p. 1293. Hort. Kew. ed. alt. 2 p. 95*

STAPELIA *barbata*; ramis pluribus tetragonis pentagonisque confertis suberectis, dentibus ramorum acutis subpatentibus, corolla campanulata decemfida, laciniis acutis subpatentibus. *Masson Stap. p. 11 t. 7.*

HEURNIA *barbata*; corolla campanulata, fauce subclausa, setis clavatis rufis: ligulis oblongis rhombeis retusis, staminibus subulatis undatim subuncatis. *Haworth Succul. p. 31. Schultes Syst. Veg. 6. p. 8.*

We have before given four species of this division, which rank under the genus HEURNIA of Brown; No. 506, *lentiginosa*; No. 1662, *reticulata*; No. 1227, *campanulata*; and No. 1661, *clavigera*; the last is erroneously given under the name of *campanulata*. The two last mentioned species and our present one *barbata* are so very nearly related,
that

that though recorded as distinct by the best authority JACQUIN, HAWORTH, and in the Hortus Kewensis, may be thought by some to be only varieties of one species.

The flowers of *STAPELIA barbata*, smell less offensively than most of the other species; the corolla is smooth, and of nearly a uniform colour on the outside, except that the tube is obscurely streaked, but within the limb is roughened by raised spots, and by scattered glandular somewhat clubbed hairs. The branches are straight, have sometimes four, more frequently five, and now then six angles.

Native of the Cape of Good Hope, whence it was introduced into this country by Mr. FRANCIS MASSON in 1795. Flowers most part of the summer. Communicated by N. S. HODSON, Esq. from the Botanic Garden at Bury St. Edmunds.



STAPELIA BUFONIS. TOAD-FLOWERED
STAPELIA.

Class and Order.

PENTANDRIA DIGYNIA.

Generic Character.

Afclepiadea. Nectar. duplici stellula tegente genitalia.

Specific Character and Synonyms.

STAPELIA *Bufonis*; ramis simplicibus: spinis cruciatim oppositis rectis, corollis quinquefidis rugosissimis, laciniis nectarii infimi bidentatis: dentibus divaricatis.

STAPELIA *Bufonia*. Donn *Cantab.*

ORBEA *bufonia*. Haworth *Succul.* p. 40.

STAPELIA *variegata* (supra No. 26.) S. *picta* (supra No. 1169) and our present plant, S. *Bufonis*, are very nearly related, and perhaps may be by some thought to be rather varieties than different species. There is, however, so considerable a difference in the herbage, as well as in the colour of the corolla, that we can but think that cultivators are justified in considering them to be distinct. The form of the nectaria would probably decide with more certainty, but this part not having been attended to with a view to their affording distinguishing characters, entire confidence cannot be put in the accuracy of representations. The latter have certainly the laciniae of the nectary bifid, and the teeth are longer and more divaricate in *Bufonis* than in *picta*. In the figure this part is represented entire in *variegata*, on which account Mr. HAWORTH considers it not to be the *variegata* of LINNÆUS. But it is necessary that these parts should be carefully compared in the living specimens, before any thing can be determined. Our present plant has been so well named, that were all the species to be seen flowering together, the likeness to that loathsome animal which has suggested its appellation, would infallibly point it out.

Flowers in August and September. Native of the Cape of Good-Hope. Requires the same treatment as the rest. Our drawing was taken some years back at the late Mr. WALKER's at Stockwell.



STAPÉLIA CACTIFÓRMIS. CACTUS-LIKE

STAPELIA.

Class and Order.

PENTANDRIA MONOGYNIA.

(Nat. Ord.—ASCLEPIADEÆ.)

Generic Character.

Calyx quinquepartitus. *Corolla* rotata, quinquefida, car-nosa. *Gynostegium* sæpius exsertum. *Corona* *staminea* du-plex; exterior foliolis v. laciniis integris v. partitis, interior corniculiformibus simplicibus v. bifidis. *Antheræ* apice sim-plices. *Massa pollinis* erectæ ventricosæ, margine hinc pel-lucido. *Stigma* muticum. *Folliculi* subcylindranei, læves, erecti. *Semina* comosa.—Plantæ *Capenses*, *carnose*, *ramosæ*, *ramis aphyllis* sæpius *tetragonis angulis dentatis*, *floribus ut plurimum speciosis atro-sanguineo-guttatis vel marmoratis et tunc nonnunquam odore nauseoso, stercorario*. D C.

Specific Name and Character.

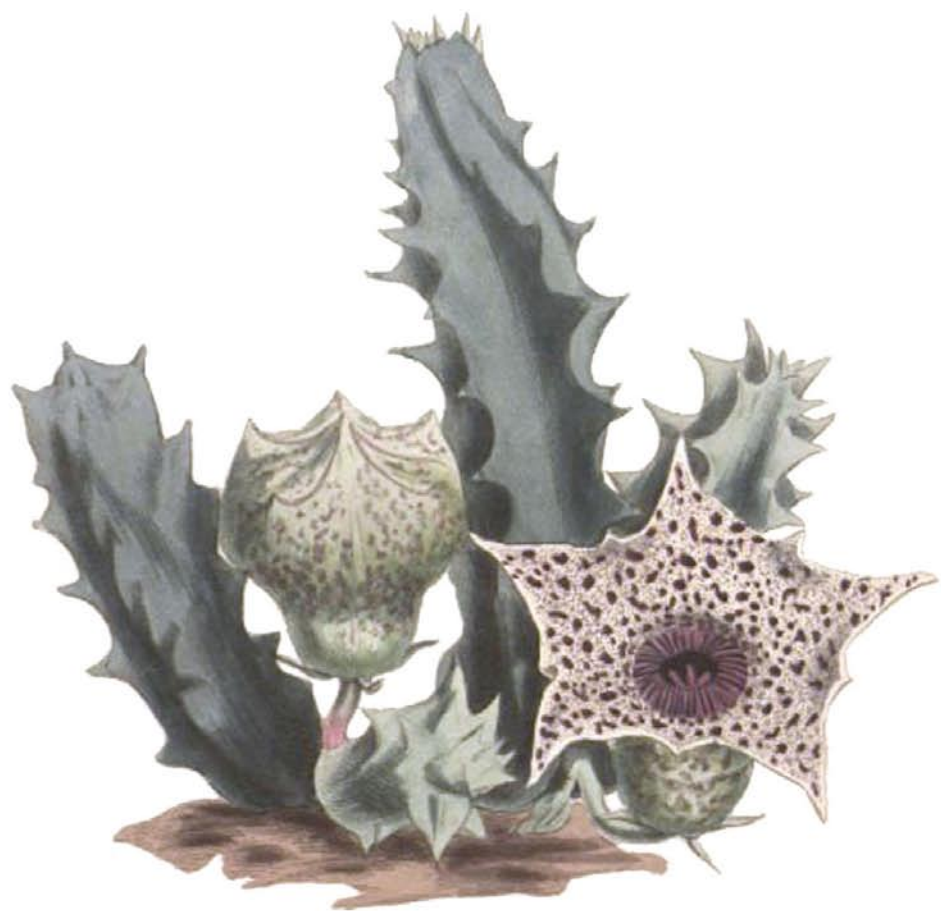
STAPELIA (§. PODANTHES?) *cactiformis*; caule cylindraneo sim-plici undique mammillis areolato, mammillis inferioribus majoribus transversim oblongis superioribus mi-noribus subrotundis angulatis medio puncto depresso, floribus ex apice caulis subsessilibus aggregatis parvis, corollæ subrotatæ laciniis triangulari-acutis, coronæ stamineæ serie externa 5-fida dentibus interjectis lo-bis bifidis laciniis divaricatis.

One of the most remarkable of a very remarkable Genus, respecting which it is to be regretted that many species, formerly known to our gardens, are lost, and scarcely any new ones have been received to take their place. Among
the

the latter, however, may be reckoned the curious *STAPELIA Gordoni* of MASSON, (*SCYTANTHUS Gordoni*, HOOK. Ic. Plant. tab. 625) which were detected by Mr. BURKE on the Orange River, and other places in South Africa, and sent to his employer, the Earl of DERBY, at Knowsley, together with the subject of the present plate, lately received among a collection of plants from Little Namaqua-land, from Mr. ZEYHER. It flowered in the Royal Botanic Gardens of Kew, in August, 1844.

DESCR. The *stem*, or, in other words, the entire plant, has more the appearance of a *MAMMILLARIA* (among *CACTACEÆ*), or some succulent South African *EUPHORBIA*, than of a *STAPELIA*, and is obovato-cylindrical, in the present instance about five inches and a-half high, and two inches broad, of a glaucous-green color, externally even mammillate; *mammillæ*, in the lower and older part of the stem transversal, oblong; above, in the younger portion, nearly rotundate and smaller, somewhat angular, as it were, by pressure: all of them prominent and furnished with a small central depression. *Flowers* small, aggregate on the summit of the stem, nearly sessile, with transverse, red bands and spots. *Calyx* deeply five-toothed. *Corolla* nearly rotate, but approaching to campanulate, minutely puckered on the surface; the five segments triangular, acute, spreading. The general form of the flower and the structure of the staminal crown in many respects approach those of *PODANTHES*: but there are differences, and the habit of the plant is quite at variance with that section or subgenus of *STAPELIA*. The exterior staminal corona has five principal divisions, with a short intervening tooth; and each principal division is forked, or deeply cleft, with the segments spreading: the horns, or segments of the interior, are linear-oblong, rather short, and incurved upon the *gynostegium*.

Fig. 1. Flower. 2. Staminal Crown:—*magnified*.



STAPELIA CAMPANULATA. BELL-FLOWERED
STAPELIA.

Class and Order.

PENTANDRIA DIGYNIA.

Generic Character.

Contorta. *Nectarium* duplici stellula tegente genitalia.

Specific Character and Synonymss.

STAPELIA *campanulata*; corollis decem-dentatis, infundibuliformibus: limbo verrucoso: tubo barbato: nectarium laciniis obtusissimis apice crenatis.

STAPELIA *campanulata*; ramis pluribus simplicibus erectis tetragonis dentatis, dentibus patentibus acutis, corolla decemfida campanulata scabra, tubo barbato. *Maffon Stap. p. 11. n. 6. t. 6.*

STAPELIA *campanulata*. *Willd. Spec. Pl. 1293. Martyn. Mill. Dict. n. 43.*

The *branches* of this species are simple erect four-sided, with teeth patent and sharp-pointed. The *peduncles* issue from near the base, and bear sometimes two or three flowers in succession. The segments of the *calyx* are linear, and project beyond the base of the corolla. *Corolla* funnel-shaped: *limb* divided to five broad triangular sharp-pointed laciniae with a much smaller one between each, sulphur-coloured with raised purple irregular spots: *tube* nearly cylindrical, clothed within with glandular hairs. The *nectarium* lies flat at the very bottom of the tube, is five-parted: laciniae very obtuse, scalloped at the point, with five simple horn-shaped appendages rising above the stigma and bent back at the point. Native of the dry country at the Cape of Good Hope. Flowers in July and August.

Our drawing was taken at the copious collection of the late JOHN WAILKER, Esq. at Stockwell; but the description from a flowering plant sent us last month by Messrs. LODDIGES.



STAPELIA CAMPANULATA. BELL-SHAPED
STAPELIA.

Class and Order.

PENTANDRIA DIGYNIA.

Generic Character.

Afclepiadea. Nectarium duplici stellula en genitalia.

Specific Character and Synonymss.

STAPELIA *campanulata*; ramis plurimis simplicibus erectis tetragonis dentatis: dentibus patentibus acutis, corolla decemfida campanulata scabra, tubo barbato. *Masson Stap. p. 11. n. 6. t. 6.*

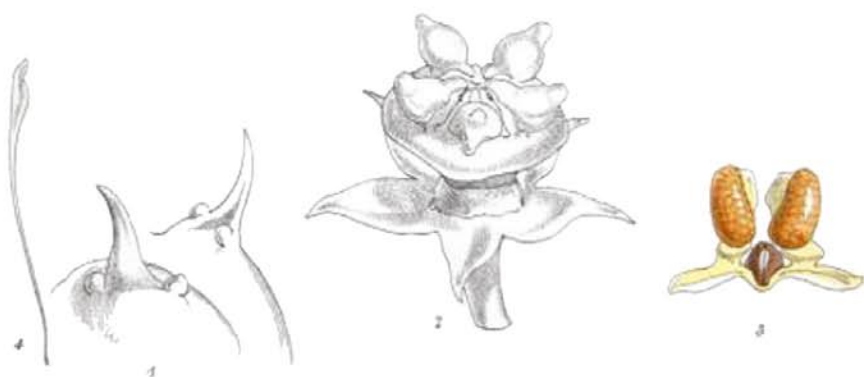
STAPELIA *campanulata*; corollis decemdentatis: laciniis majoribus lanceolatis; fundo campanulato, pedunculis triflois, ramis erectis tetragonis basi floriferis. *Willd. Sp. Pl. 1. p. 1293. Hort. Kew. ed. alt. 2. p. 95.*

HUERNIA. *Brown Afclep. in Mem. Wern. Soc. 1. p. 22.*

Our figure will be observed to differ in some respects from that of MASSON, and has been supposed to be a distinct species; but we can see no good reason for such a conclusion. In MASSON's figure, the colour of the spots is seen on the outside of the corolla, but we have observed the same difference in some other species, which may probably be owing to our plants being blown under glass, and consequently exposed to a lesser degree of light, as well as of air, which lessens the intensity of colour in most flowers.

The branches are generally four-angled, rarely five-angled and the tube of the corolla is filled with a club-shape pubescence, as described by MASSON.

Our drawing was taken from a plant that flowered at Mr. VERE's, in August 1813. We received the same from Messrs. LODDIGES some years ago.



TAB. 6082.

STAPELIA CORDEROYI.

Native of South Africa.

Nat. Ord. ASCLEPIADEÆ.—Tribe STAPELIÆ.

Genus STAPELIA, Linn.; (*Decaisne in DC. Prodr.*, vol. viii. p. 652).

STAPELIA (*Duvalia*) *Corderoyi*; humilis, glaberrima, glauca, ramulis brevibus obesis procumbentibus ovoideo-oblongis obtusis sub-4-costatis, costis rotundatis remote dentatis, sinubus acutis, dentibus brevibus triangulari-subulatis patentibus basi carnosus et utrinque unituberculatis, corolla $1\frac{1}{2}$ -2 poll lata ad medium 5-loba, lobis triangularibus acuminatis sordide viridibus marginibus recurvis, apices versus fusco-purpurascens, sinubus setoso-glandulosus, fauce elevata pallide-lilacina filamentosa, corona staminea duplici breviter stipitata purpurea, exterior e disco crasso obtuse 5-gono, interiore e cornubus 5 brevibus crassis ovoideis exteriori impositis.

I am quite unable to identify this very curious little *Stapelia* with any described species, though it clearly belongs to Haworth's section *Duvalia*. In habit, size, and form of branches it agrees with *S. cæspitosa*, Mass., but the flowers are very much larger, and of a totally different form and colour. To the same division belong *S. radiata* (Tab. nost. 619) and *S. reclinata* (Tab. nost. 1397); but these have, like *S. cæspitosa*, small dark-coloured flowers, with very narrow corolla-lobes.

I have named this very curious and distinct species after Mr. Justus Corderoy, of Blewberry, near Didcot, an old and an eminent cultivator of succulent plants, and for many years a valued correspondent of the Royal Gardens. It flowered at Blewberry in September of last year.

DESCR. *Branches* short, procumbent, very stout, glaucous, about two inches long by three-quarters of an inch in diameter, very pale green and fleshy, obtusely 4–5-ribbed, the ribs semi-cylindric with an acute sinus between them, each bearing two to four short triangular teeth, which are fleshy at the base, and there furnished with a globose tubercle on each side. *Peduncles* solitary or in pairs, about an inch long,

FEBRUARY 1ST, 1874.

green, variegated with purple. *Calyx* of five triangular-subulate green teeth, with red-brown tips. *Corolla* about one and a half inches in diameter, 5-lobed to about the middle; lobes triangular-acuminate, dirty green, with purple brown tips, and a few long slender glandular purple hairs in the sinus, margin recurved; throat surrounded with an elevated lilac coronal disk, clothed with slender spreading purplish hairs. *Staminal-column* on a short stipes, expanded into a broad fleshy purple obscurely 5-lobed disk (the outer corona) which bears on its summit as many egg-shaped obtuse spreading horns (which form the inner corona). *Pollen-masses* bright orange, reniform.—*J. D. H.*

Fig. 1, Teeth on ribs of branches; 2, flower, with the corolla removed; 3, pollen-masses:—*all magnified.*



STAPELIA DIVARICATA. STRADDLING
STAPELIA.

Class and Order.

PENTANDRIA DIGYNIA.

Generic Character.

Contorta. Nectar. duplici stellula tegente genitalia.

Specific Character and Synonyms.

STAPELIA *divaricata*; ramis pluribus tetragonis divaricatis glabris dentatis, dentibus parvis subrectis, corolla glaberrima quinquefida: laciniis lanceolatis patentibus, margine revolutis ciliatis. *Maff. Stap.* 17. t. 22.

STAPELIA *divaricata*. Willd. *Sp. Pl.* v. 1. p. 1280. Mart. Mill. *Dict. n.* 10.

The branches of this very distinct species of STAPELIA going off almost at right angles, and being long and tapering, at once mark it from every other, even when out of bloom. Communicated by J. WALKER, Esq. of Stockwell-Common, whose valuable collection contains a great many species of this very singular genus, all of which are natives of the Cape of Good-Hope.

Flowers the latter-end of the summer, and requires the same treatment as other succulent plants from the Cape.



STAPELIA ELEGANS. ELEGANT STAPELIA.

Class and Order.

PENTANDRIA DIGYNIA.

Generic Character.

Contorta. *Nectar*. duplici fteellula tegente genitalia.

Specific Character and Synonyms.

STAPELIA *elegans*; corollis quinquefidis hispidis: laciniis lanceolatis margine ciliatis, fundo pentagono, pedunculis corolla longioribus, ramis diffusis oblongis teretiufculo tetragonis medio floriferis, *Willd. Sp. Pl.* 128 .

STAPELIA *elegans*; ramis pluribus confertis oblongis dentatis dentibus patentibus acutis, corolla quinquefida, laciniis triangularibus hispidis, margine fimbriatis. *Mass. Stap.* 27

STAPELIA *elegans*, *cæspitosa*, and *radiata* (supra 619) are very nearly allied; the first, our present plant, is distinguished from the second principally by the laciniæ being covered with hairs on the inside as well as ciliated at the margin; from both the second and third by being more patent. The branches of all three are very short, recumbent, and crowded together. The acuteness or bluntness of the teeth is a character not much to be depended upon, as they vary so much at different periods of their growth.

Our drawing was made at Mr. SALISBURY's Botanic Garden at Brompton, in November 1807. Native of the sand deserts called Karro, at the Cape of Good Hope.

Requires the same treatment as the other species.



STAPELIA GEMINATA. TWIN-FLOWERED
STAPELIA.

Class and Order.

PENTANDRIA DIGYNIA.

Generic Character.

Contorta. Cor. rotata. Neff. stellula duplex tegens genitalia. Folliculi 2. Sem. plumosa.

Specific Character and Synonyms.

STAPELIA *geminata*; ramis oblongis subtetragonis dentatis: dentibus parvis, floribus geminatis, corolla laciniis lanceolatis acutis margine revolutis. *Maff. p. 18. n. 25. t. 25. Persoon Syn. 1. p. 280.*

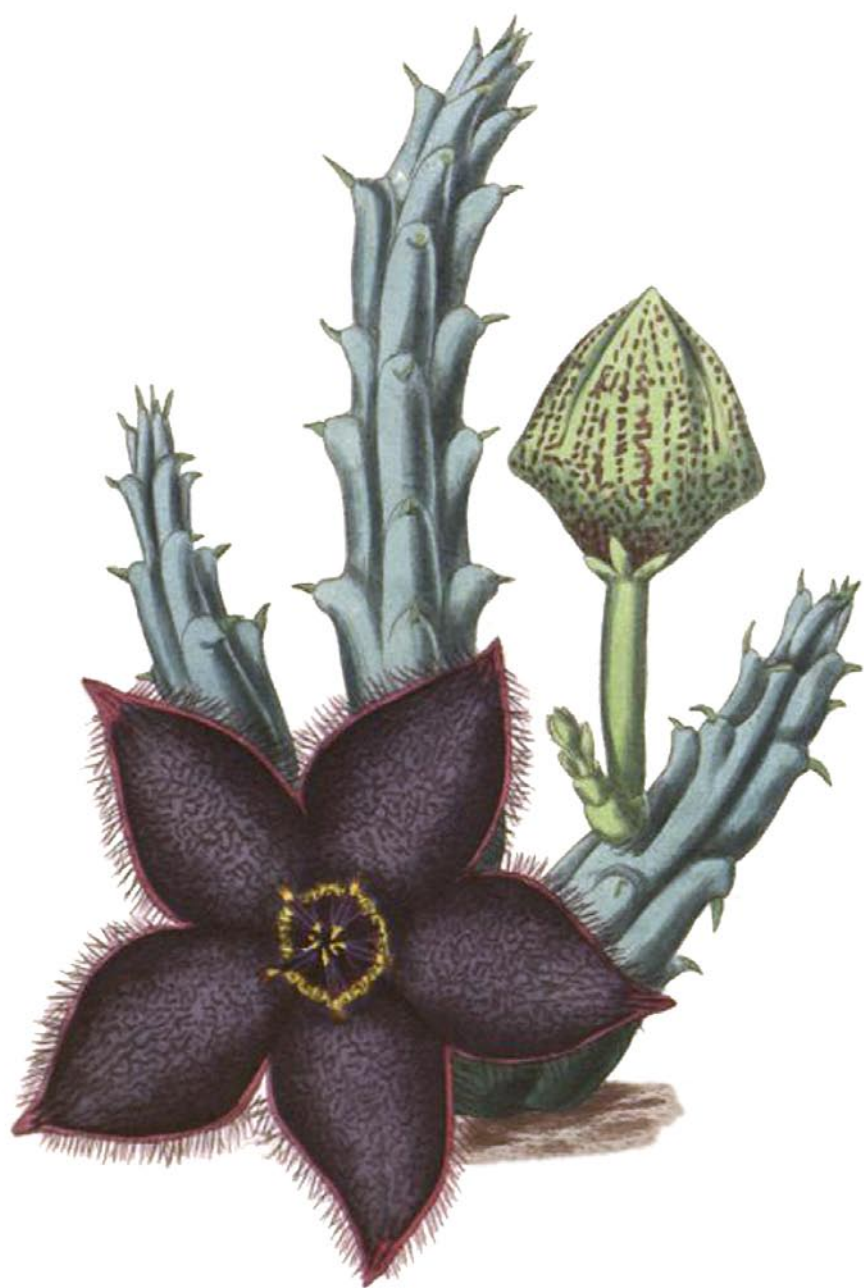
STAPELIA *geminata*; corollis quinquefidis, laciniis lanceolatis, margine revolutis, pedunculis geminatis longitudine corolla, ramis decumbentibus teretibus apice floriferis. *Willd. Sp. Pl. 1. p. 1290.*

We received both this species and *punctata* from the Rev. SACKVILLE BALE, at Withyam, near Tunbridge-Wells, in September 1802. They had both flowered in very great perfection, but owing to an accidental delay in the delivery of his letter, they did not arrive in a state fit for drawing. The figure here given was drawn from the collection of the late JOS. WALKER, Esq. at Stockwell.

There are sometimes more than two flowers from the same point, but seldom more in flower at nearly the same time. The corolla is villous within and deeply divided into five segments, with the margins somewhat rolled back. The branches
are

are very short, nearly rounded, with tubercles more or less obsolete, armed with a minute mucro.

Although these plants for the most part grow in the hot sandy soil of the south of Africa, yet they will often flower better when supplied largely with water, provided the heat of the stove be sufficient. Mr. BALE had kept the pans of both the above-mentioned species constantly supplied with water and the stove very hot, to which he attributed their flowering better than they had ever done with him before. *STAPELIA geminata* had grown so luxuriantly, that the branches hung over the edge of the pot and threw out roots into the water in the pan.



(1839)

STAPELIA GEMMIFLORA (β.) GEM-FLOWERED
STAPELIA.

Class and Order.

PENTANDRIA MONOGYNIA.

Generic Character.

Asclepiadea, *Nectar*. duplici stellula tegente genitalia.

Specific Name and Character.

STAPELIA *gemmiflora*; corollis ciliatis facie tuberculato-scabrosis, ligulis tripartitis erectis: laciniis lateralibus subulatis media sublanceolata. *Jacq. Stap.*

STAPELIA *gemmiflora*; ramis pluribus erectis tetragonis dentatis: dentibus suberectis acutis, corolla plana scabra quinquefida: laciniis ovato-lanceolatis margine ciliatis. *Masson Stap. p. 14. n. 15. t. 15.*

STAPELIA *gemmiflora*; corollis quinquefidis scabris: laciniis ovato-lanceolatis margine ciliatis superne quinque-nerviis, pedunculis longitudine corollæ, ramis erectis tetragonis inferne floriferis. *Willd. Sp. Pl. p. 1280. Hort. Kew. ed. alt. 2. p. 87.*

TRIDENTEA *gemmiflora* corolla crassissima corrugata atra, albo-ciliata. *Haworth Succul. p. 34.*

(α.) *ciliis albis.*

(β.) *ciliis rubicundis.*

TRIDENTEA *stygia*; corollis rugosis atris, pilis rubicundis, ramis crassis brevibus, luteo-viridibus. *Haworth Succul. p. 35.*

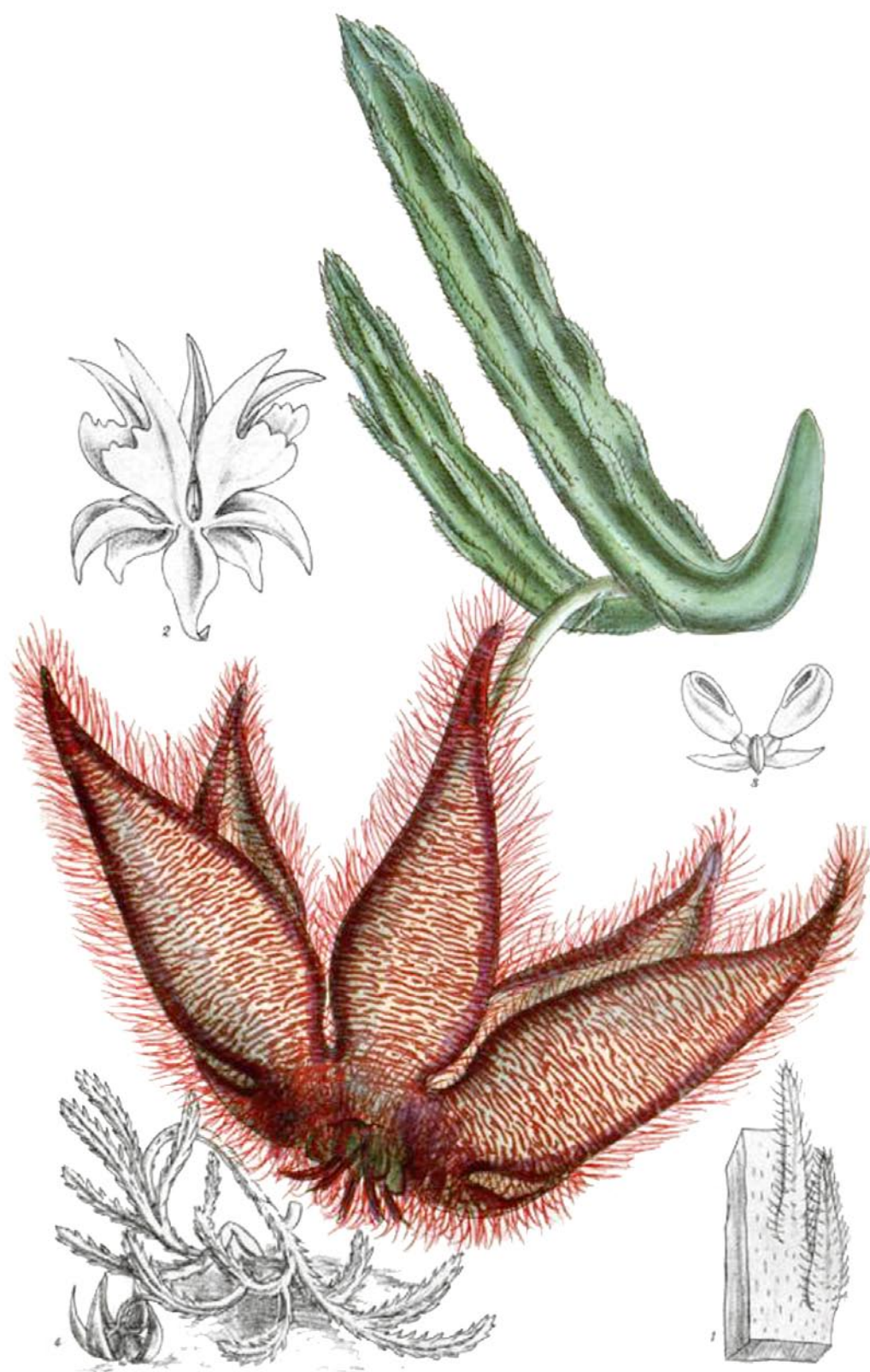
The *ciliæ*, or glandular hairs on the margin of the corolla, in our plant and in JACQUIN'S, are of a red colour. In MASSON'S figure they are represented white. Mr. HAWORTH considers the two varieties to be distinct species, from some difference

difference in the stems ; but, in this respect, our plant does not seem to us to differ materially from MASSON's figure. The colour of the flower varies from dark purple to almost black; and also in the number and situation of the gold-coloured specks.

Our plant was far less brightly spotted on the under-side than is represented in MASSON's figure, and in JACQUIN's these spots were entirely wanting. Neither were the nerves, so marked on the upper surface of the lacinix of the corolla in MASSON's drawing, at all visible in our plant, nor are they seen in JACQUIN's figure. This shows how dangerous it is to frame the specific characters from drawings only, as WILLDENOW has done throughout this genus.

Our drawing was taken at Messrs. WBITLEY, BRAME, and MILNE's Nursery, at Fulham.

Flowers in June. Native of the Cape of Good-Hope, growing among the shrubs in the sandy districts beyond Platte-Kloof. Requires the same treatment as the rest of the genus.



N. C. Sel. J. N. Fitch lith.

L. Reece & Co. London.

Vincent Brooks, Day & Son, Ltd. and

TAB. 8681.

STAPELIA GETTLEFFII.

Transvaal.

ASCLEPIADACEAE. Tribe STAPELIEAE.

STAPELIA, *R. Br.; Benth. et Hook. f. Gen. Plant.* vol. ii. p. 784.

Stapelia Gettleffii, *Pott in Ann. Transvaal Mus.* vol. iii. p. 226; affinis *S. hirsutas*, Linn., sed caulibus crassioribus, foliis duplo longioribus appressioribus et corolla fere ad apicem luteo-lineata bene distinguenda.

Herba succulenta 10–20 cm. alta. *Caules* 1·2–1·5 cm. crassi, erecti basi decumbentes, tetragoni angulis compressis dentatis, velutino-pubescentes, virides. *Folia* rudimentaria 9–12 mm. longa, adpresso-erecta, lineari-lanceolata, acuta. *Cymae* prope basin caulorum enatae, subsessiles, 1–8-florae. *Pedicelli* 6–8 cm. longi, 4–5 mm. crassi, velutini. *Sepala* 10–12 mm. longa, lanceolata, acuta, velutina. *Corolla* 14–16 cm. diametro, profunde 5-loba, extra velutina, flavo-viridia, intus transverse rugosa, disco purpureo longe et molliter purpureo-lanato, lobis fere ad apicem transverse luteo- et purpureo-lineatis marginibus late purpureis et longe purpureo-ciliatis; lobi patentes vel reflexi, 6–7 cm. longi, 2·5 cm. lati, lanceolati, acuti, marginibus revolutis. *Coronae exterioris* lobi 6 mm. longi, erecto-patuli apice recurvi, lanceolati, supra canaliculati, apice subulato-acuminati, atropurpurei; *interioris* lobi 10–12 mm. longi, patuli, subulati, dorso late alati, alis 1–8-dentatis, atropurpurei.—N. E. BROWN.

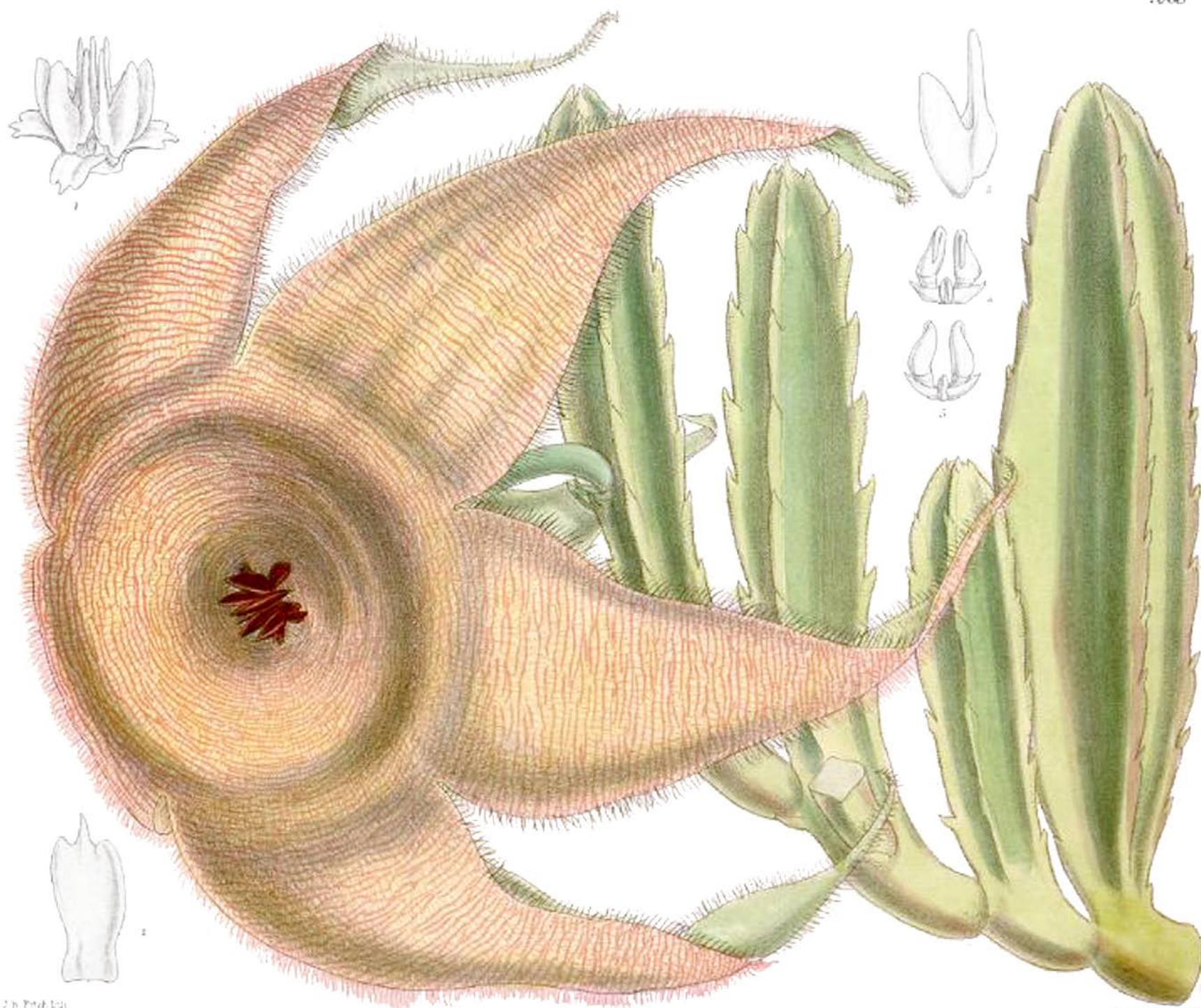
The handsome *Stapelia* here figured was originally discovered in 1911 by Mr. G. F. Gettleffi at Louis Trichardt in the Zoutpansberg division of the Transvaal, and in the same year was found also at Palapye Road. A living plant from the latter locality, sent by Mr. N. S. Pillans, reached Kew in June, 1911. It has thriven well on the sunny shelf of a warm greenhouse and, flowering for the first time in June, 1915, has enabled the accompanying plate to be prepared. A second living plant was sent to Mr N. E. Brown by Mr. Pillans from Palapye Road in 1911, and another from the Louis Trichardt locality, sent by Mrs. Pott, reached England in 1912. In April, 1913, Mrs. Pott supplied the Kew Herbarium with an excellent dried specimen prepared by her from the plant on which her original description was based. The peculiar fashion in which the unusually large rudimentary leaves are disposed, in an erect position close

OCTOBER, 1918,

to the angles of the stem, at once distinguish it from all the allied species even when it is out of flower. Its nearest ally is *S. hirsuta*, Linn., from the south-western portion of Cape Colony, and one of the most interesting features connected with the plant now described is that its habitat should be separated from that of the older species by a distance of six hundred miles. Like other members of the genus, *S. Gettleffii* requires a well-drained soil, and very little water should be supplied during the winter months.

DESCRIPTION.—*Herb*, succulent, 4–8 in. high; stems $\frac{1}{2}$ – $\frac{2}{3}$ in. thick, decumbent below then erect, 4-angled with angles compressed and toothed, velvety-pubescent, green. *Leaves* rudimentary, adpressed-erect, $\frac{1}{3}$ – $\frac{1}{2}$ in. long, linear-lanceolate, acute. *Cymes* subsessile, produced near the base of the stem, 1–3-flowered; pedicels $\frac{1}{4}$ – $\frac{1}{3}$ in. long, $\frac{1}{6}$ – $\frac{1}{5}$ in. thick, velvety. *Sepals* $\frac{1}{3}$ – $\frac{1}{2}$ in. long, lanceolate, acute, velvety. *Corolla* about 6 in. across, deeply 5-lobed, velvety outside, yellowish-green, transversely rugose within, the purple disk clothed with long soft pubescence, the lobes with broad purple edges and elsewhere barred with transverse yellow and purple lines; lobes spreading or reflexed, $2\frac{1}{4}$ – $2\frac{3}{4}$ in. long, 1 in. across, lanceolate, acute, with margins reflexed. *Corona* double; lobes of the outer corona $\frac{1}{4}$ in. long, somewhat spreading, lanceolate, with a subulate-acuminate recurved dark-purple tip; those of the inner corona $\frac{1}{3}$ – $\frac{1}{2}$ in. long, spreading, dark-purple, subulate with a 1–3-toothed broad dorsal wing.

Fig. 1, portion of stem with rudimentary leaves; 2, corona; 3, pollen-masses; 4, sketch of an entire plant:—*all enlarged except 4, which is much reduced.*



M. S. 46. 27. 1911.

L. H. 100. 100. 100.

Y. 100. 100. 100. 100.

TAB. 7068.

STAPELIA GIGANTEA.

Native of Zululand and Namaqua Land.

Nat. Ord. ASCLEPIADACEÆ. Tribe STAPELIÆ.

Genus STAPELIA, Linn.; (*Benth. et Hook. f. Gen. Plant.* vol. ii. p. 784.)

STAPELIA *gigantea*; ramis e caule valido procumbente erectis clavatis 4–8 poll. longis 1–1¼ poll. crassis 4-gonis pubescentibus, angulis compressis dentatis, dentibus brevibus erectis, pedicellis pollicaribus crassis tomentosis, corolla 12–14 poll. diametr., pilis rufis erectis sericeis molliter hirsuta flavida lineolis fusco-rubris creberrime fasciata, laciniis caudato-acuminatis, corona atropurpurea, exterioris squamis lineari-oblongis apice 3-lobis, lobis lateralibus rotundatis intermedio ovato v. calcariforme, interioris segmentis in rostra erecta productis, rostris dorso in alas verticales obtusas integerrimas dilatatis.

S. gigantea, *N. E. Brown in Gard. Chron.* 1877, vol. i. p. 684 and 693, fig. 112, and 1888, vol. ii. p. 728, fig. 101.

This, some *Rafflesias* and certain species of *Aristolochia* are the largest-flowered members of the vegetable kingdom, and, what is curious, all are most fetid and have lurid colours. They agree in no other characters; they differ altogether in habit and botanical affinity; and they inhabit widely distant parts of the world, namely, South Africa, Malaya, and Brazil.

The Giant *Stapelia* is a native of Zululand, where it was discovered by Mr. R. W. Plant, a collector, some thirty years ago, and sent by him to the Botanical Gardens of D'Urban, whence it was introduced into England by Mr. Cooper. It has also been collected by Gerrard, and there is a drawing of it in the Kew Herbarium, made by Mr. Sanderson of Natal, and specimens from the Umveloo River; and what is most curious, Mr. Brown informs me that he has received from Professor Macowan, of the Cape Town Botanical Gardens, a living specimen of the same species collected in Namaqua Land, on the opposite side of the African continent. In this respect it is exceptional, for the species of this genus for the most part occupy limited areas; in other words, are as a rule local.

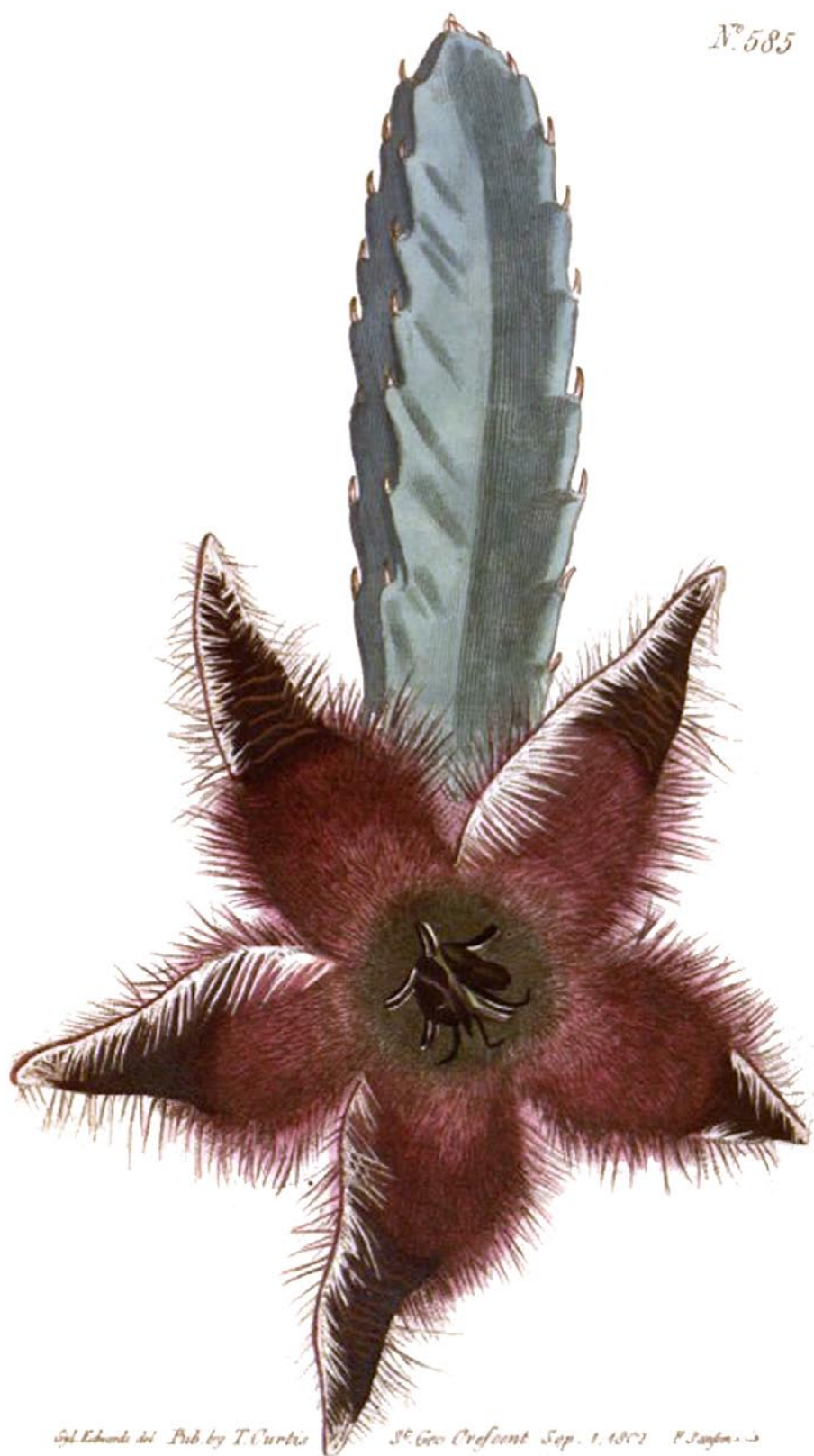
AUGUST 1ST, 1889.

The specimen here represented was sent by Sir George MacLeay from his rich collection at Pendell Court, where it flowered in October of last year; and is a cutting from the original plant imported by Mr. Cooper. There is a specimen of it in the Royal Gardens, where it has not flowered as yet.

DESCR. *Stem* as thick as the thumb, terete; branches erect, pubescent, pale green, four to eight inches long by one to nearly two broad, four-angled, obtuse; angles compressed, rather acute, with small erect teeth, sides between the angles shallowly concave. *Pedicels* very stout, about one inch long, tomentose. *Calyx-lobes* ovate-lanceolate, tomentose. *Corolla* twelve to fourteen inches broad, closely covered with erect soft hyaline hairs that are red brown over the whole surface of the corolla, but white and transparent on the margins of the segments, under surface yellowish mottled with green, upper dull yellowish with close-set short narrow undulate red-brown bars; central area three to three and a half inches in diameter, concave, margins rounded; segments ovate-lanceolate, gradually tapering into long points. *Corona* small, very dark red-purple; outer of five panduriformly-oblong spreading scales three-lobed at the top, the side lobes short rounded, the midlobe produced into a short spur; inner corona of five erect spiniform processes, each produced at the back into a quite entire obtuse wing.—*J. D. H.*

Fig. 1, Corona; 2, scale of outer corona; 3, segment of inner corona; 4 and 5, pollinia with their corpuscles:—*all enlarged.*

N^o 585



STAPELIA GRANDIFLORA. GREAT-FLOWERED
STAPELIA.

Class and Order.

PENTANDRIA DIGYNIA.

Generic Character.

Contorta. *Nect.* stellula duplex tegens genitalia.

Specific Character and Synonyms.

STAPELIA *grandiflora*; ramis quadrangularibus clavatis: angulis dentatatis: dentibus remotis incurvatis, corolla magna plana quinquefida: laciniis lanceolatis acutis margine ciliati. *Maffon. Stap. p. 13. n. 11. t. 11.*

STAPELIA *grandiflora*. *Willd. Sp. Pl. 1. 1278.*

This STAPELIA has the largest flowers of any of the whole genus, the corolla measuring when fully expanded, in the specimen from which our drawing was taken, six inches in diameter, and is equally offensive to the smell as any of its congeners. More nearly allied to STAPELIA *hirsuta* than to any other; but besides a considerable difference in the branches, is distinguished by segments more acute and covered with hairs to a greater extent; not only the centre of the flower, as in *hirsuta*, but more than half the segments, being thickly clothed with a felt of fine soft silky hairs of a reddish purple colour. The tips of the flower are of a very black purple colour and naked, except the fringe on the edge, which also surrounds the rest of the flower

flower, and consists of very long white silky hairs, growing from a narrow margin in one rank, but alternately reclining in different directions, chiefly distichwise; whereas in *hirfuta*, the ciliae grow on a broader margin, constituting a thicker but much shorter fringe. The parts of fructification, which vary so much in the different species, though sufficiently different in form to mark a distinct species, are very similar to those of *hirfuta*, well figured and described by JACQUIN in his *Miscellanea Austriaca*, tom. 1. p. 28. tab. 3. We are however by no means convinced that the APOCINÆ *Juss.* to which order *Stapelia* belongs, should be referred to the class decandria, but consider them rather as having five two-lobed anthers, with the lobes distinct; we would therefore retain them in the class pentandria for just the same reason that Prof. SWARTZ has considered the Orchideæ to be really monandrous, though arranged by LINNÆUS as diandrous.

Culture the same as for the rest of the genus, see No. 536. It does not flower so readily as many of the others, the buds being very apt to die off, even when far advanced.

Found by MASSON at the Cape of Good Hope, near Sondags Rivier.

Our drawing was taken in December, from a specimen communicated by Mr. LODDIGES, Nurserman at Hackney, who has a large collection of *Stapeliæ*.



TAB. 5751.

STAPELIA HYSTRIX.

Bristly-flowered Stapelia.

Nat. Ord. ASCLEPIADEÆ.—GYNANDRIA PENTANDRIA.

Gen. Char. (Vide supra, TAB. 5692.)

STAPELIA *Hystrix*; glauco-virescens, ramis ramulisque pentagonis, angulis rotundatis dentatis, dentibus patentibus corneis acutis, pedunculis solitariis v. aggregatis unifloris roseis ex parte inferiore ramulorum enatis, corolla patentissima 5-fida, lobis ovatis acuminatis, supra sulphureis striis brevibus interruptis transversis rufis et processibus subulatis erectis diaphanis apicibus rufescentibus densissime obtectis, corona exteriore depressa lobata, cornubus conniventibus appendici crasso horizontali oblongo obtuso terminatis, appendicibus discum obtuse 5-lobum efformantibus.

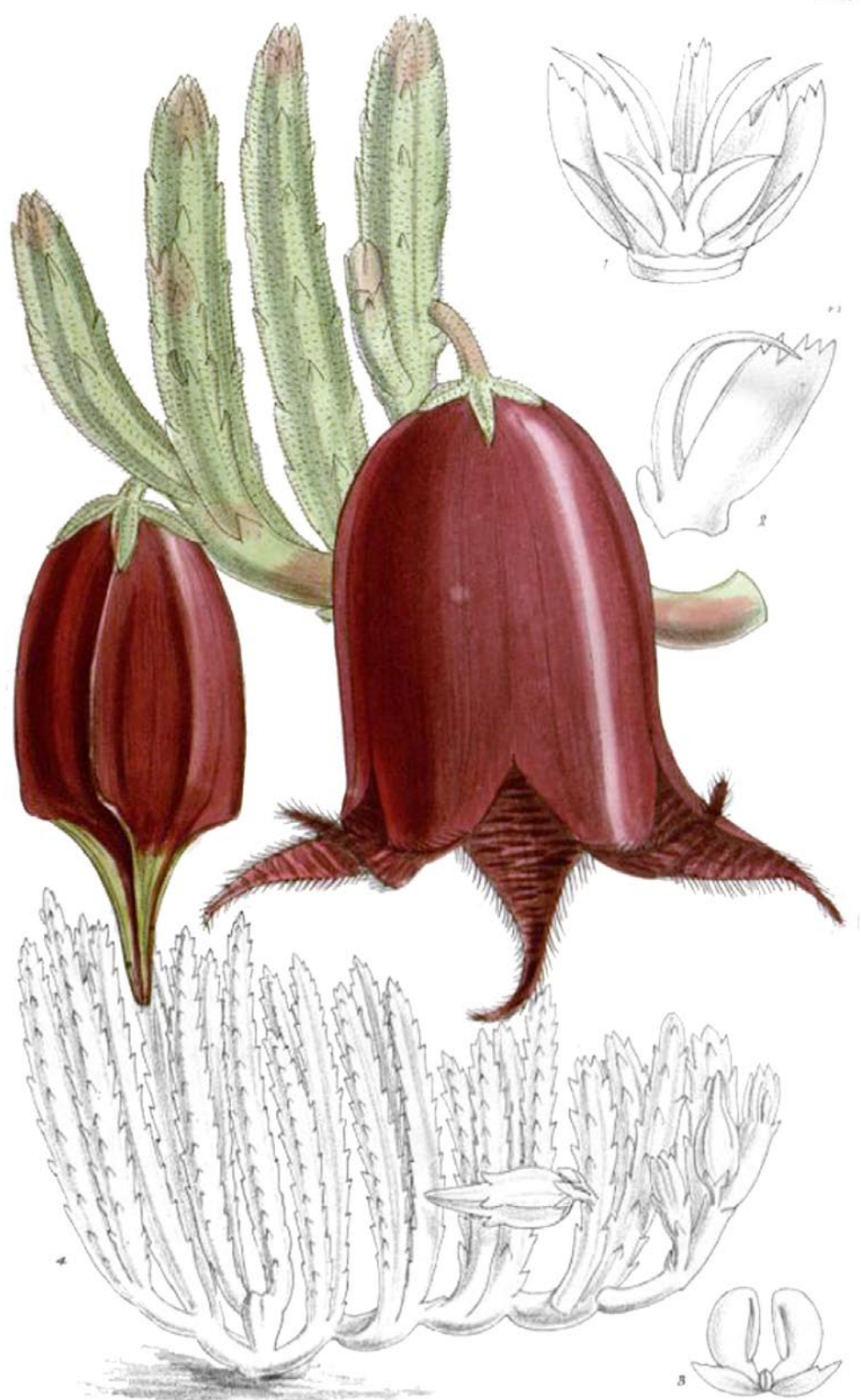
This is an entirely new species, in so far as I can ascertain, of the long neglected but interesting and beautiful genus *Stapelia*. At first sight it resembles so closely the *S. glanduliflora* of Masson (cultivated in Kew in 1796, but now lost to the country), that it was taken for that plant; but it differs entirely in the five-angled stems, horizontal spines, in the larger flowers, in the subulate processes (not clavate hairs) that cover the corolla-lobes, and in the curious horizontal appendages that crown the staminal processes, and together form a five-rayed disk in the centre of the flower. It is a native of Eastern South Africa, and was sent to the Royal Gardens by Mr. M'Ken, the indefatigable and able Superintendent of the Natal Botanic Gardens.

DESCR. A small, tufted, pale glaucous-green species, four to six inches high, and much branched. *Branches* half an inch to three-quarters of an inch in diameter, five-angled; angles obtuse, tuberculate, toothed, tubercles conical, teeth horny, pointing outwards. *Flowers* two to three together from near the bases of the branches, bracts subulate; peduncles pink. *Sepals* small, lanceolate. *Corolla* one inch in diameter, pale sulphur-coloured, internally marked with innu-

JANUARY 1ST, 1869.

merable small, short, transverse bars of dark purple, lobes ovate acuminate, spreading and recurved, densely covered with erect, diaphanous, subulate, fleshy processes, tipped with purple; interior of tube smooth. *Outer corona* depressed, expanded, lobulate, with small tubercles between each stamen. *Staminal processes* erect, conniving, with horizontal terminal appendages that are thick and ovoid, flat above and convex below; these together form a five-rayed disk in the centre of the flower.—*J. D. H.*

Fig. 1. Vertical section of tube of corolla, showing the corona and staminal processes:—*magnified*.



TAB. 8561.

STAPELIA LEENDERTZIAE.

Transvaal.

ASCLEPIADACEÆ. Tribe STAPELEÆ.

STAPELIA, *Linn.*; *Benth. et Hook. f. Gen. Plant.* vol. ii. p. 784.

Stapelia Leendertziae, *N. E. Br. in Ann. Transvaal Museum*, vol. ii, p. 168; affinis *S. nobilis*, *N. E. Br.*, sed floribus minoribus sordide purpureis corollae tubo multo longiore differt.

Herba succulenta, aphylla. *Caules erecti*, basi decumbentes 7·5–12 cm. longi, 1–1·3 cm. crassi, 4-angulares, velutino-puberuli, prope medium florantes, angulis subcompressis dentatis, dentibus erectis. Flores solitarii vel bini. *Pedicelli* 2–2·3 cm. longi, 4–4·5 mm. crassi, velutini. *Sepala* 8–9 mm. longa, lanceolata vel ovato-lanceolata, acuta, velutina. *Corolla* magna, campanulata lobis leviter patentibus, extra puberula, intus profunde transversim rugosa et usque ad medium tubi pilis longis purpureis ornata, omnino sordide purpurea; tubus 5–6·5 cm. longus, 4·5–6 m. diametro; lobi 4–5·5 cm. longi, basi 2·5–4 cm. lati, attenuato-deltoides, acuti, pilis purpureis ciliati. *Coronae* lobi exteriores 4 mm. longi, subereti, profunde bifidi, atropurpurei, segmentibus divergentibus subulatis acutis; lobi interiores 4 mm. longi inaequaliter bipartiti, atropurpurei, segmentis exterioribus aliformibus oblongis 6 mm. longis 4 mm. latis apice denticulatis, segmentis interioribus subulatis. *Folliculi* 11–14 cm. longi, erecti, pralleli, fusiformi, velutino-puber, virides, fusco-purpureo striati. —*N. E. BROWN.*

The *Stapelia* here figured is one of the most striking species in the genus, and is also one of the most distinct by reason of the great length of the tube of the corolla. In another species, *S. nobilis*, *N. E. Br.*, which has been figured at t. 7771 of this work, there is also a distinct tube to the corolla, but although the flowers are larger in that species than in the ones here described, the tube is considerably shorter, while the lobes are more spreading and the coloration is different. Save in *S. nobilis* and in *S. Leendertziae*, the subject of our plate, the corolla in all the members of the genus is flat or saucer-shaped. This latter plant was first met with in 1909 by Miss R. Leendertz, now Mrs. R. Pott, of the Transvaal Museum, growing among rocks near Heidelberg in the Transvaal. Here it occurs in sunny spots on rocks, where it forms large patches and flowers freely for a long period at the beginning of the year. The

JUNE, 1914

corollas are of a uniform dull, dark, fuscous-purple colour, and have a very disagreeable odour. The plant from which the figure now given was prepared is one sent, in 1910, by Mr. G. Thorncroft, of Barberton, Transvaal, to Mr. W. E. Ledger, of Wimbledon, in whose collection it flowered in August, 1912. Another plant sent by Miss Leendertz flowered subsequently at Kew. Mr. Ledger informs us that he has found the sunny upper shelf of a warm greenhouse the ideal situation for this *Stapelia*; a well-drained soil with an admixture of lime rubbish suits it excellently.

DESCRIPTION.—*Herb*, leafless, succulent. *Stems* erect, decumbent at the base, 3–5 in. long, $\frac{1}{3}$ – $\frac{1}{2}$ in. thick, 4-angled, velvety-puberulous, bearing flowers about the middle; the angles slightly compressed, toothed, the teeth erect. *Flowers* solitary or in pairs, their pedicels $\frac{3}{4}$ –1 in. long, $\frac{1}{6}$ in. thick, velvety. *Sepals* $\frac{1}{3}$ in. long, lanceolate or ovate-lanceolate, acute, velvety. *Corolla* large, campanulate, with the lobes only slightly spreading, puberulous outside, deeply transversely rugose, and beset as far as the middle of the tube with long purple hairs within, dull fuscous-purple throughout; tube 2–2 $\frac{1}{2}$ in. long, 1 $\frac{3}{4}$ –2 $\frac{1}{4}$ in. across; lobes 1 $\frac{1}{2}$ –2 $\frac{1}{5}$ in. long, 1–1 $\frac{1}{2}$ in. wide at the base, narrow deltoid, acute, ciliate with purple hairs. *Corona* with outer lobes $\frac{1}{6}$ in. long, suberect, deeply 2-fid, dark purple, the segments diverging, subulate, acute; inner lobes $\frac{1}{6}$ in. long, unevenly 2-partite, dark purple; the outer segments wing-like, oblong, $\frac{1}{4}$ in. long, $\frac{1}{6}$ in. wide, denticulate at the tip, the inner segments subulate. *Follicles* 4 $\frac{1}{2}$ –5 $\frac{1}{2}$ in. long, erect, parallel, fusiform, velvety puberulous, green, streaked with dark purple.

Fig. 1, outer and inner corona; 2, lobe of the inner corona; 8, a pair of pollen masses:—*all enlarged*.



STAPELIA LENTIGINOSA. FRECKLED
STAPELIA.

Class and Order.

PENTANDRIA DIGYNIA.

Generic Character.

Contorta. *Nect.* duplici stellula. 5-phylla tegente genitalia.

Specific Character.

STAPELIA lentiginosa, corollis decem-dentatis, laciniis alternis obsoletis, fundo concavo orbiculo elevato cincto; caulibus superne ramosis, ramis pentagonis patentibus tuberculosis: tuberculis uncinatis.

When the Hortus Kewensis of Mr. AYTON was published, there were only five species of Stapelia known in this country, and of these two had been newly introduced by Mr. FRANCIS MASSON. This laborious investigator of nature has since described and figured forty-one new species, the flowers of many of which are extremely beautiful as well as singular in their appearance. On carefully examining all these species, as well as those before known, we cannot find that our plant in every respect exactly corresponds with any one of them. In the colour and shape of the corolla, it agrees very well with the *guttata*, but in this the flowers sit on longer peduncles, which arise from the base of the stalk, the stalks are undivided, and the tubercles are not hooked; on which account we deem ourselves justified in considering it as a new species.

The specimen from which our figure was taken, flowered in the collection of E. D. WOODFORD, Esq. at Vauxhall, last summer, who received it from the royal garden at Kew, into which this species also was introduced by Mr. FRANCIS MASSON.

For the proper mode of culture, see our account of *Stapelia variegata*.



(1833)

STAPELIA MACULOSA. SPOTTED-FLOWERED
STAPELIA.

Class and Order.

PENTANDRIA DIGYNIA.

Generie Character.

Asclepiadea. *Nectar.* duplici stellula tegente genitalia.

Specific Character and Synonyms.

STAPELIA *maculosa*; orbiculo solido, rostris alisque teretibus obtusis, ligulis trifidis, corollis subtus planissimis oras ciliatis. *Jacq Stap.*

STAPELIA *maculosa*; corollis quinquefidis lævibus planis ciliatis, fundo orbiculato convexo, coronæ exterioris laciniis tridentatis, cornubus binis clavatis approximatis. *Willd. Enum.* 283.

STAPELIA *maculosa.* *Donn Cant. ed.* 1, 2, & 3. sed *mixta* ed. posteriorum.

ORBEA *maculosa.* *Haworth Succul. p.* 37.

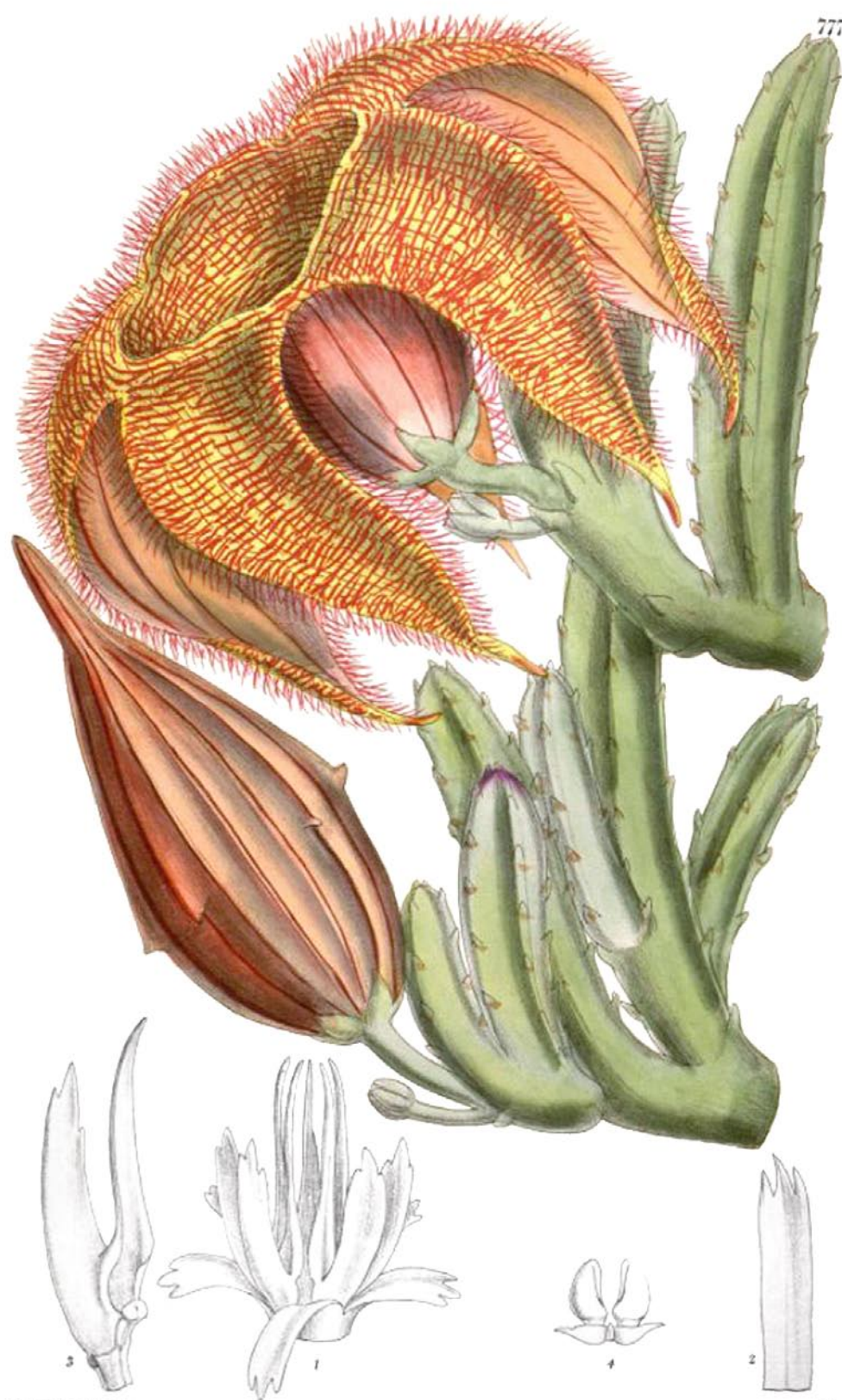
STAPELIA *variegata* (No. 26.)—*picta* (Np.1169.)—*Bufonis* (No 1676.) and *maculosa*, are nearly-allied species, and are, with some others, separated into a distinct genus by Mr. HAWORTH, under the name of ORBEA.

The venerable JACQUIN'S splendid work on the genus STAPELIA, though published several years ago, owing to the unsettled state of the continent, has not till very lately reached this country. In his figure of our present plant, the light parts of the flower are a deeper yellow, and the stalks more slender and brown-coloured, circumstances very liable to vary but in other respects it does not differ from the one here given.

As

As JACQUIN received his plant from this country, under the name which he has adopted, there can be no doubt that it is the *maculosa* of the early edition, of DONN's Catalogue.

Native of the Cape of Good-Hope. Communicated by Mr. GEORGE GRAVES.



M. S. det. J. N. P. Fish. h. h.

Vincent, Hirooka Day & Son, Ltd.

TAB. 7771.

STAPELIA NOBILIS.

Native of South Africa.

Nat. Ord. ASCLEPIADEÆ.—Tribe STAPELIÆÆ.

Genus STAPELIA, Linn.; (*Benth. & Hook. f. Gen. Plant.* vol. ii. p. 784.)

STAPELIA (*Tridentea*) *nobilis*; caule decumbente basi ramoso tetragono pubescente angulis dentatis faciebus concavis, foliorum rudimentis dentibus insertis $\frac{1}{12}$ poll. longis erectis ovatis acutis puberulis, floribus solitariis binisve basin versus ramulorum insertis, pedunculo crasso pollicari velutino, sepalis $\frac{1}{4}$ poll. longis ovato-lanceolatis acutis velutinis, corolla ampla extus rubro-purpurea puberula intus ochracea pilis longis laxe villosa et lineis sanguineis trabeculata, tubo campanulato $1\frac{1}{2}$ poll. diam., lobis $2\frac{3}{4}$ poll. longis ovato-lanceolatis acuminatis reflexis pilis purpureis ciliatis, coronæ exterioris brunneo-purpureæ lobis $\frac{1}{4}$ poll. longis ascendentibus linearibus 3-dentatis glabris, interioris lobis inæqualiter bipartitis segmentis subulatis triquetris suberectis.

S. nobilis, *N.E. Br. mss.*

Mr. N. E. Brown, from whose description of this plant, prepared for the forthcoming part of the *Kew Bulletin*, the above is taken, says that it is closely allied to *S. gigantea* (tab. 7068); differing in the stems not being so stout, and their angles much less compressed. The flowers are similar in colour, but those of *S. nobilis* are much smaller, have a distinctly campanulate tube, and are more hairy within.

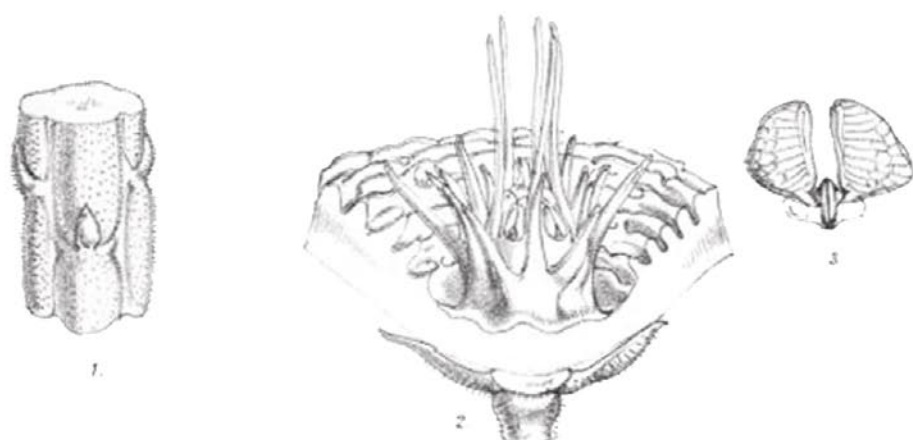
The plant here figured was sent to the Royal Gardens, Kew, in 1897, by Mr. T. G. Griffiths of Port Elizabeth, Cape Colony, but of its exact native habitat I have no information. It flowered in the Succulent House in May, 1900.

Descr.—*Stem* decumbent, branched at the base, about two-thirds of an inch in diameter, pubescent, four-angled; angles toothed, their faces concave. *Leaves* rudimentary, erect, inserted on the teeth of the angles, about one-twelfth of an inch long, ovate, acute, puberulous. *Flowers* solitary, or two on the lower part of the branches; peduncle an inch long, stout, velvety. *Sepals* about one-fourth of an inch long, ovate, acute, velvety. *Corolla* large, red-purple externally, internally villous with long hairs, ochraceous,

APRIL 1ST, 1901.

trabeculate with blood-red cross-lines; tube campanulate, half an inch in diameter; lobes two and three-quarters of an inch long, ovate-lanceolate, acuminate, reflexed, ciliate with purple hairs. *Outer corona* purple-brown, glabrous; lobes a quarter of an inch long, linear, ascending, three-toothed. *Inner corona* with unequally bipartite lobes.—*J. D. H.*

Fig. 1, corona; 2, lobe of outer corona; 3, inner corona; 4, pollinia:—*all enlarged.*



TAB. 6212.

STAPELIA OLIVACEA.

Native of South Africa.

Nat. Ord. ASCLEPIADEÆ.—Tribe STAPELIÆ.

Genus STAPELIA, Linn.; (*Benth. & Hook. f. Gen. Plant.* vol. ii. p. 784 *ined.*)

STAPELIA *olivacea*; ramis rectis gracilioribus minute puberulis 3–5-pollicaribus cinereo-virentibus purpureo-maculatis tetragonis angulis obtusis ad insertiones dentorum transversim constrictis, dentibus parvis triangularibus appressis, floribus ramos ad imos juniores insitis minime pedunculatis, calycis puberuli segmentis minimis subulatis, corolla foetidissima diametro sesquipollicari profunde quinquefida extus sordide viridi puberula, intus glabra rugis crebris instructa olivaceo-brunnea lobis ovatis acutis 5-nerviis albociliatis, coronæ exterioris squamis anguste oblongis acutis purpureo-brunneis linea centrali ornatis, interioris duplo longioribus cornubus falcato-subulatis instructis attenuatis paullo recurvis omnibus purpureo-brunneis.

S. *olivacea*, N. E. Brown in *Gard. Chron.*, 1875, iii., p. 136.

This interesting species appears to have been known for some little time in gardens as *Stapelia eruciformis*, although there seems to be some doubt whether that name does not belong to another species (*Gard. Chron.*, 1875, iii., p. 206). It was sent to Kew by H.E. Sir Henry Barkly in April, 1874, where it flowered in September following, and was first described by Mr. Brown, assistant in the Herbarium of the Royal Gardens, in the “Gardener’s Chronicle” in January of last year. The following description is in great part adopted from Mr. Brown.

DESCR. *Stems* erect, rather slender, branching at the base, minutely puberulous, three to five inches high, three-eighths to half an inch thick, tetragonal, with rounded angles, transversely constricted at the base of the minute lanceolate appressed teeth, greyish green, becoming blotched with purple on full exposure to the sun. *Flowers* two to six from the bases of the younger branches; peduncles two to three lines long, puberulous, green. *Calyx* five-partite, puberulous; segments two to two and a half lines long, subulate. *Corolla* very foetid, about one and a half inch in diameter, dull green and puberulous externally, glabrous within, with numerous crowded brown transverse rugæ on a dark olive-green or

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sometimes pale olive ground; lobes ovate, acute, recurved, five-nerved, fringed with white hairs. *Scales* of external corona narrowly oblong, one-eighth of an inch long, dark purple-brown, with a smooth polished central line; scales of inner corona twice as long, attenuate, dark purple-brown, with falcate-subulate dorsal processes.—*W. T. T. D.*

Fig. 1, Portion of branch; 2, section of corolla with corona, the dorsal processes of the segments of the inner series have not been made sufficiently distinct from the segments of the outer series; 3, pollen-masses:—*all magnified.*

N^o 793



Syl Edwards del. Pub. by T. Curtis. N^o 793. Crescent Nov 1804. F. S. Longdon sculp.

STAPELIA PEDUNCULATA. LONG-STALKED
STAPELIA.

Class and Order.

PENTANDRIA DIGYNIA.

Generic Character.

Contorta. *Nectarium* duplici stellula tegente genitalia.

Specific Character and Synonyms.

STAPELIA *pedunculata*; ramis pluribus divaricatis tetragonis subdentatis, pedunculis longissimis corolla quinquefida: laciniis lanceolatis margine revolutis; angulis fimbriatis. *Massf. Stap.* n. 21. t. 21.

STAPELIA *pedunculata*. *Willd. Sp. Pl.* 1. 1284.

This very distinct species of *Stapelia* may be at once known from all its congeners by the extraordinary length of the peduncles; and even when out of flower the appearance of the branches is different from every other: the angles in these are so obscure as to render them almost cylindrical, and the teeth resemble warty excrescences, being nearly, and in many places entirely, obliterated. The peduncles are described by MASSON to grow, as in our drawing, from the underside of the young branches, and we have never observed them to deviate from this situation; but in his figure they are made to issue from the upper surface, and the flowers in consequence to stand erect. We have observed a considerable difference in the intensity of the colour of the corolla, and MASSON mentions two varieties, one with brown-purple, the other with yellowish flowers. Found by this assiduous collector in the dry country at the Cape, about Camies Berg, and introduced by him to the Kew Garden, about the year 1784.

Our drawing was taken at Mr. WOODFORD's, Vauxhall, the latter-end of last June. Requires the same treatment as the rest of the genus, and is by no means so shy of flowering as some of the species.



STAPELIA PICTA. PAINTED STAPELIA.

Class and Order.

PENTANDRIA DIGYNIA.

Generic Character.

Contorta. *Nectar.* duplici stellula tegente genitalia.

Specific Character and Synonyms.

STAPELIA *pecta*; ramis simplicibus quadrifulcatis torulosis, corollis femiquinquefidis nudis: laciniis ovato-acuminatis rugosis: annulo orbiculari elevato rugosissimo medio depresso papuloso, nectarii infimi laciniis patentibus apice bifidis.

STAPELIA *pecta*. *Donn Hort. Cant.* p. 53.

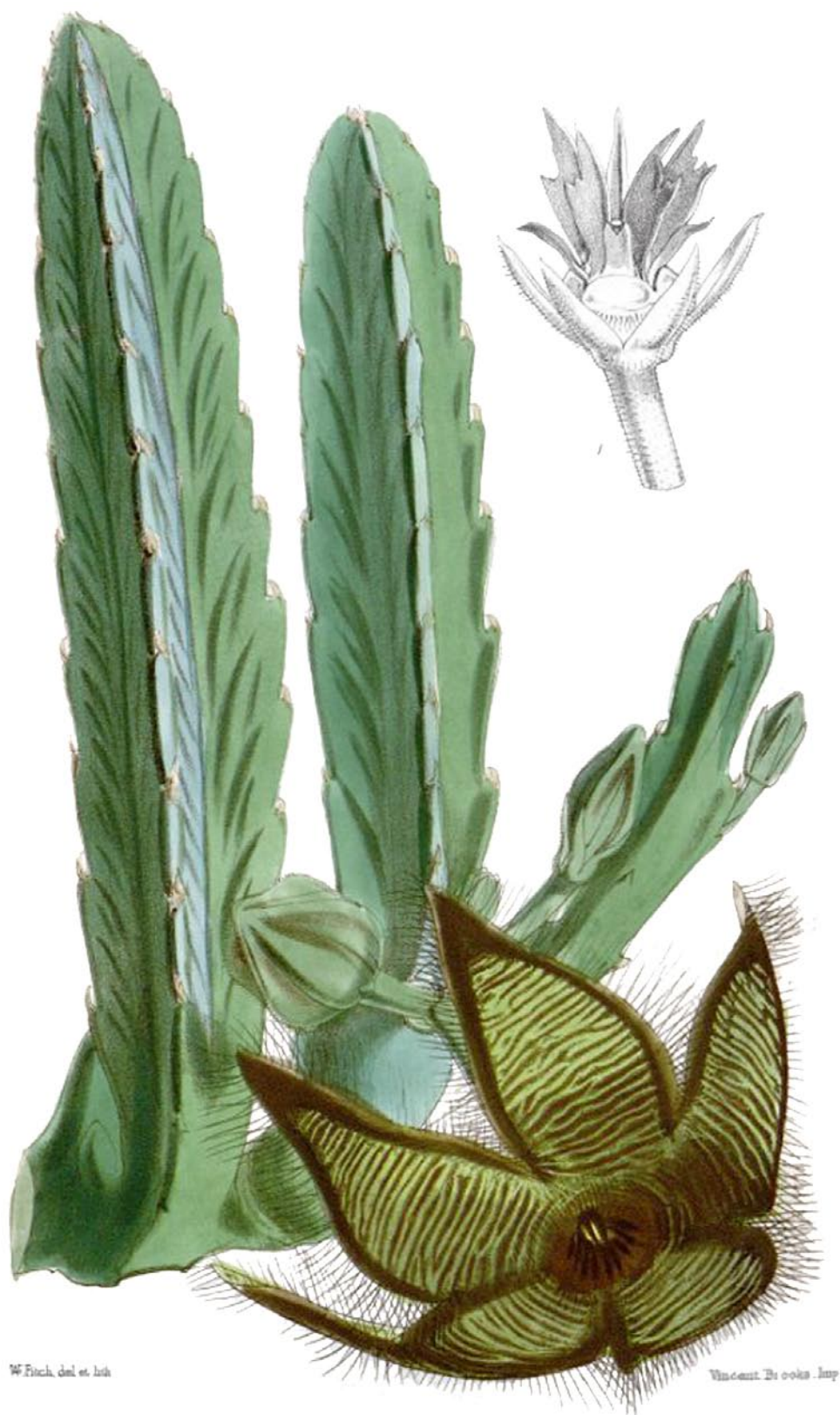
STAPELIA *variegata*. *Jacq. Misc.* 1. p. 27. t. 4. ?

Though nearly allied, we believe that this plant and STAPELIA *variegata*, No. 27 of this work, are sufficiently distinct; but *S. variegata* of JACQUIN, above quoted, is probably the same species with the one here figured. For although there appears to be a considerable difference in their stems, yet, in this genus, these are so subject to vary from age, that characters drawn from them are seldom excellent; the parts of the flower afford much better, and, of these the different forms of the nectaries, though hitherto neglected, appear to us by far the best.

We long ago (vide No. 585) remarked, that we could not agree with JACQUIN and others, in considering these plants as properly belonging to the class Decandria; nor can we assent to the propriety of removing them to the class Gynandria. A perpendicular section of the flower of any of the Stapelias, through the centre of the germens, will shew that the stamens are supported entirely upon organs which take their rise from the corolla; and even in these cases where they

they appear to be most immediately incumbent upon the stigma, a thin membrane, which has its insertion in the corolla, is interposed between them and it. Indeed the stigma itself, which in the natural order of *APOCINEÆ* is so differently constructed from what is usual in this organ, appears to be rather an appendage of the corolla than of the germens. But as it seems destined to absorb the fertilizing fluid and convey it to the ovaries, it thus performs the office of the stigma, and we see no reason to call it by another name, as *HALLER* has done.

All the species of this genus are natives of the Cape of Good Hope. Communicated by Mr. *LODDIGES*, in September 1801.



STAPELIA PLANTII.

Mr. Plant's Stapelia.

Nat. Ord. ASCLEPIADEÆ.—PPENTANDRIA PPENTAGYNIA.

Gen. Char. Calyx 5-partitus. Corolla rotata, 5-fida, carnosæ. Gynostegium sæpius exsertum. Corona staminea duplex, exterioris foliolis v. laciniis integris v. partitis, interioris foliolis corniculiformibus simplicibus v. 2-fidis. Antheræ apice simplices. Pollinia erecta, ventricosa, margine hinc pellucida. Stigma muticum. Folliculi subcylindrici, læves, erecti. Semina comosa.—Plantæ Capenses, carnosæ, ramosæ, ramis aphyllis sæpius 4-gonis angulis dentatis. Flores ut plurimum speciosi, atro-sanguineo guttati marmorati v. fasciati. Decaisne in DC. Prod.

STAPELIA *Plantii*; ramis pubescentibus erectis 4-quetris clavatis v. columnaribus, angulis dentatis, dentibus remotis incurvis spinula molli terminatis, pedunculis calycibusque pubescentibus, corolla ampla 5-fida, marginibus longe ciliatis, laciniis lanceolatis acuminatis, disco fusco-purpureo fasciis fulvis creberrime transverse notato, marginibus lat. eatro-purpureis.

STAPELIA *Plantii*. Hort. Grahamstown.

In the year 1811, the Kew collection of Stapelice contained no less than forty-four species, that of epiphytic Orchids thirty-seven. Those were the days of small dry stoves, heated by hot-air flues; when the successful cultivation of epiphytic Orchids was regarded as impossible, and our houses overflowed with the representatives of such dry climates as South Africa and Australia. Now we boast of rather fewer species of Stapelia and about four hundred epiphytic Orchids; and, small as the former collection must appear when compared with the number of species of Stapelia that have been in cultivation (nearly eighty), it is, I believe, one of the largest now in England. In Germany, probably, much larger exist; and that much may be added to all, is evident from the fact of the subject of the accompanying Plate being quite new; it was sent to the Royal Gardens from the Botanic Garden of Grahamstown, in 1866, and flowered in November, 1867. As a species it is very near *S. grandiflora* and *S. hirsuta*, differing from both

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chiefly in the pale sulphur-coloured transverse bands of the corolla lobes.

DESCR. *Stem* stout, creeping; *branches* downy, five to nine inches long, erect, columnar or subclavate, with four thick wings; *wings* remotely toothed; *teeth* incurved, and terminated by short, soft, incurved spines. *Peduncles* at the base of the branches, stout, and, as well as the calyx, pubescent. *Corolla* five inches in diameter, villous around the throat; *lobes* an inch to an inch and a half broad, ovate-lanceolate, purplish-brown in the centre, and there transversely barred with wavy yellow bands, margins and apex broadly black-purple, ciliated with long hairs. *Staminal crown* double; outer lobes simple, entire, narrow; inner broader, unequally two-lobed.—*J. D. H.*

Fig. 1. Staminal crown,—*magnified*



STAPELIA PULLA. BLACK-FLOWERED
STAPELIA.

Class and Order.

PENTANDRIA MONOGYNIA.

Generic Character.

Asclepiadea. Nectar. duplici stellula tegente genitalia.

Specific Character and Synonyms.

STAPELIA *pulla*; amis obsolete angulatis torulosis aculeatis, floribus aggregatis sessilibus: laciniis lanceolato-acuminatis replicatis erectis.

STAPELIA *pulla*; corollis 5-fidis: laciniis erectis lanceolato-acuminatis margine revolutis; pedunculis flore brevioribus, ramis erectis subhexagonis medio extra dentes floriferis. *Willd. Sp. Pl. 1. p. 1288. Hort. Kew. ed. alt. 2. p. 92.*

STAPELIA *pulla*; subhexagona erecta, aculeis patentissimis, floribus sessilibus aggregatis, corollarum laciniis lanceolatis, supra holosericeis replicatis. *Masson Stap. p. 29. t. 31. Hort. Kew. ed. prior. 1. p. 310.*

The STAPELIA *pulla* is among the rarest of the species of this numerous family cultivated in our stoves, and is still more seldom seen in flower. Our drawing was taken some years ago at the collection of the late I. WALKER, Esq. of Stockwell.

The cultivation of these plants most proper to bring them into flower does not seem to be generally known, they are usually directed to be kept in the dry stove; but we have before observed, that the Rev. S. BALE had found that they flowered better by being plentifully supplied with water in a well-heated bark stove. Being natives of sandy deserts, where they are exposed to very long droughts at one time, and at another to be deluged by rain, it is probable that they should be kept very dry, during the season that they are not disposed
to

to flower; but when the period of flowering arrives, that they should then be removed to a well-heated bark stove, and be plentifully supplied, even kept in pans frequently replenished with water.

Flowers in August. Native of the sandy districts beyond the ridges of mountains north of the Cape.



STAPELIA PULVINATA. CUSHIONED
STAPELIA.

Class and Order.

PENTANDRIA MONOGYNIA.

Generic Character.

Nectar. duplici stellula tegente genitalia.

Specific Character and Synonyms.

STAPELIA *pulvinata*; ramis reclinatis, corollis quinquefidis: laciniis subrotundis rugosis acuminatis ciliatis, fundo elevato densissime piloso.

STAPELIA *pulvinata*. *Masson Stap. p. 13. t. 13. Willd. Sp. Pl. 1279. Martyn Mill. Dict. n. 7.*

This species is one of the most splendid in the genus, but the colours are not usually so bright as in the specimen from which our drawing was made, some years ago, at Mr. WOODFORD's late garden at Vauxhall.

It was introduced by Mr. MASSON from the Cape, where it grows among bushes, about Camies-Burg, and is called by the Dutch inhabitants the Arabische Rose; the sense of smelling alone is however fully sufficient to expel every idea of affinity with that fragrant genus.



STAPELIA RADIATA. STARRY STAPELIA.

Class and Order.

PENTANDRIA DIGYNIA.

Generic Character.

Nectarium duplici stellula tegente genitalia.

Specific Character and Synonyms.

STAPELIA *radiata*; ramis confertis brevibus: dentibus conicis acutis, corollæ laciniis distantibus replicatis nudis: fundo elevato tiaræformi, pedunculis geminis.

This species comes very near to STAPELIA *cæspitosa* of MASON, *t.* 29, but differs in the segments of the corolla not being ciliated, and in the peduncles generally coming in pairs.

When the corolla opens, the laciniae are doubled back as sharply as if pinched, enclosing the segments of the calyx in the fold so completely that the flower appears to have no calyx. After the flowering is over these expand and close again, as is usual in the genus, when the calyx comes in sight. The nectary consists of five tongue-shaped hollow bodies, supported upon small pedicles, disposed in the form of a star, the five points of which meet at the centre of the flower, where there appears to be a perforation opposite the points of the germen. Between there are five round yellow bodies divided by a dark line having an anther-like appearance, from each of these proceed what we would call the two lobes of the anther,

anther, or in the language of SWARTZ, the pollen-masses, club-shaped, lying each in a hollow, in which they are confined by the nectary, one ray of which covers a right and left-hand lobe of two different anthers. Upon the removal of this star the lobes of the anthers rise up, sometimes suddenly with a spring, sometimes more gradually, and, if touched with the point of a pin, discharge a colourless fluid.

We have been thus particular in describing these parts, because being more simple than in most of the species it seemed to throw some light on their uses. The five rays of the star pointing exactly to the centre of the corolla seem admirably calculated to direct a fluid pollen more surely to the real stigmas lying immediately under their points. We would not however speak with too much certainty of the perforation of the centre of the corolla, having used only a common lens, and not having observed such an opening in any other species that we have examined.

The plant from which our drawing was made was sent us by Mr. LODDIDGES of Hackney, in August. It is a free blower, flowers coming in succession through most part of the year. Has an ill smell and little beauty to recommend it. The *Stapelias* are generally kept in the dry stove, but we learn from the Rev. Mr. BALE, that many of them thrive better, and flower with more certainty, if kept in the bark stove and watered plentifully.



STAPELIA RECLINATA. RECLINING STAPELIA.

Class and Order.

PENTANDRIA DIGYNIA.

*Generic Character.*Contorta. *Nectar.* duplici stellula tegente genitalia.*Specific Character and Synonyms.*

STAPELIA *reclinata*; corollis quinquefidis: laciniis lanceolatis margine ciliatis: fundo elevato, pedunculis corolla longioribus, ramis patentibus tetragonis supra basin floriferis. *Willd. Sp. Pl.* 1. 1282. *Hort. Kew.* 2. v. 2. p. 88.

STAPELIA *reclinata*; ramis pluribus tetragonis reclinatis dentatis: dentibus acutis patentibus, corolla quinquefida recurvata; laciniis patentibus replicatis fimbriatis, *Masson Stap. p.* 19. n. 28. t. 28.

STAPELIA *reclinata*, *elegans*, *cæspitosa*, and *radiata* of the Botanical Magazine very much resemble each other both in the herb and the flower. The last is most obviously distinguished from the others by the laciniae of the corolla being altogether without pubescence; *elegans* by the inside of the laciniae being covered with hairs as well as the margin ciliated; *reclinata* and *cæspitosa* have the margin only ciliated, in the former the peduncle is longer than the flower, and the exterior stellula of the nectary (which in all four species is orbicular and quite entire) is of the same dark red as the laciniae, but in the latter this part is green, and the peduncle only equal to the flower in length.

Native of the Cape of Good Hope. Discovered by Mr. FRANCIS MASSON. Introduced in 1795. Flowers through most part of the summer. Our drawing was made from the collection of Mrs. WALKER, at Stockwell.



STAPELIA RETICULATA. NETTED-FLOWERED
STAPELIA.

Class and Order.

PENTANDRIA DIGYNIA.

Generic Character.

Asclepiadea. Nectarium duplici stellula tegente genitalia.

Specific Character and Synonyms.

STAPELIA *reticulata*; ramis pentagonis denticulatis dentibus patentibus, corolla decemangulata, tubo intus barbato ampliato in orbiculum elevatum. *Masson Stap. p. 9. n. 2. t. 2.*

STAPELIA *reticulata*; corolla decemdentata: lacinis majoribus ovatis acutis, fundo barbato orbiulo elevato cincto, pedunculis binis corolla brevioribus ramis pentagonis patulis basi floriferis. *Willd. Sp. Pl. 1. p. 1295. Hort. Kew. ed. alt. 2. p. 96.*

HUERNA. *Brown Asclep. in Mem. Wern. Soc. 1. p. 22.*

The elevated ring which furrounds the mouth of the tube in this species is not so well expressed in our drawing as it ought to have been. The light parts of the flower in MASSON's figure are much whiter, and run in cross more like the meshes of a net. Yet from the remarkable five-angled sharp-toothed branches, clouded with purplish spots, we have no doubt of the identity of the species. If we mistake not, we were informed that Mr. WOODFORD received his plant from MASSON himself under the name of *reticulata*.

This species and the preceding, as well as *lentiginosa*, No. 506, belong to the same division, in which the parts of fructification lie at the bottom of the tube, and are separated into a distinct genus, by Mr. BROWN, in his elaborate and ingenious Essay on the Natural Order of *Asclepiadeæ*, published in the Memoirs of the Wernerian Society. To this he has applied the name of HUERNIA, "in memory of JUSTUS HEURNIUS, one of the earliest collectors of Cape plants, and from whose drawings the first account of STAPELIA was taken."

Grows naturally in the hollows of rocks, near North Olifant's River. Our drawing was taken several years ago, from Mr. WOODFORD's collection, late at Vauxhall, in the month of August.



STAPELIA REVOLUTA. REVOLUTE-
FLOWERED STAPELIA.

Class and Order.

PENTANDRIA DIGYNIA.

Generic Character.

Contorta. *Nectarium* duplici stellula tegente genitalia.

Specific Character and Synonyms.

STAPELIA *revoluta*; ramis tetragonis erectis denticulatis: dentibus patentibus, corolla glabra, laciniis ciliatis acutis revolutis. *Mass. Stap.* 12. t. 10.

STAPELIA *revoluta*; corollis quinquefidis glabris, laciniis ovatis margine pilosis revolutis, pedunculis corolla brevioribus, caule tetragono basi ramoso erecto superne florifero. *Willd. Sp. Pl. v. 1. t. 1277,*

The *STAPELIA revoluta* is very little branched; branches quite erect, long, quadrangular, with the sides hollowed out: teeth obtuse, patent. Flowers subsolitary on very short peduncles. Segments of the calyx acute. *Corolla* smooth, very fleshy: segments revolute, margin fringed with club-shaped vibratory glands, quivering with the leaf breath of air. *Nectary* small, sunk in a hollow with a contracted opening: segments five, radiate, oval, ferrate at the tip; between each segment is a horn-like bipartite process, the internal branch of which is longer, erect, and dilated at the point; the external one is shorter, patent, and acute. Between each of these horns is placed a black shining gland to which the lobes of the anther or, as called by some, pollen masses, in every species of *Stapelia* we have examined, are attached. These lobes in most species lie concealed under the horn-like processes, but in this they seem exposed to the air, only covered with a thicker coat than usual of a dull purple colour. In some specimens the minute variegation below the segments of the corolla is not seen, but the whole of this part is of an uniform colour. A native of the Cape of Good-Hope, growing under shrubs in dry fields in Karro beyond Noord Olifant's River, flowering in September and October.

Our drawing was taken at Mr. WOODFORD's, Vauxhall, in July 1801. We have likewise a drawing of the same species, taken at Messrs. GRIMWOOD and WYKES's. Cultivation the same as for the other species.



TAB. 5963.

STAPELIA SORORIA.

Native of the Cape of Good Hope.

Nat. Ord. ASCLEPIADEÆ—Tribe, STAPELIEÆ.

Genus, STAPELIA, *Linn.*; (*Decaisne in DC. Prodr.*, vol. viii. p. 652).

STAPELIA (*Stapletonia*) *sororia*; caulibus erectis, ramis erectis v. divaricatis 4-gonis inter angulos dentatos depressis, dentibus remotis acutis incurvis, pedunculis solitariis v. binis ex ramulis junioribus provenientes decurvis dein adscendentibus, corolla ampla atro-purpurea 5-fida fauce lobisque densissime et longe villosis, lobis acutis rugosis rugis basin versus luteis.

STAPELIA *sororia*, *Masson, Stap. Nov.*, p. 23, t. 39; *Jacquin. Stap. Hort. Vind. Descript.* t. 22, 36, 37. *Lodd. Bot. Cab.* t. 94. *Decaisne in DC. Prodr.*, vol. viii. p. 652.

One of the earliest-known species of the curious genus to which it belongs, introduced into England by Masson, a collector for Kew, though it nowhere appears in the first or second editions of the *Hortus Kewensis*. Masson who first described it, in 1796, states that it flowered in his garden at the Cape of Good Hope in 1792, and in the Royal Gardens, Kew, in 1797. The said Francis Masson was a gardener at Kew, and was, at the instigation of Sir Joseph Banks, sent to the Cape, to collect live plants for the King (George III.): he left England in 1772, and remained in South Africa till 1775, when he returned on leave to England, and spent his vacation in publishing the beautiful drawings he had made of *Stapelias* in a small folio work, dedicated to the King, with figures and descriptions of forty-one species, all new to science, (there having been but two previously published from that country) and collected in the Karroo country chiefly by himself. In 1786 he returned to the Cape, and spent ten more years in collecting for Kew. Close upon ninety species of *Stapelia* are described in Decaisne's monograph of the genus, APRIL 1ST, 1872.

in De Candolle's *Prodromus*, published in 1844, since which time many more have been discovered, but few figured. In 1811, forty-four species were cultivated at Kew, where there are now about thirty.

St. sororia varies much in robustness, size of flower, and in the number and extent of yellow ridges on the petals.

DESCR. Pale green, glabrous. *Stems* six to ten inches high, with erect or horizontal branches one-third to two-thirds of an inch in diameter, rather depressed or channelled between the angles, which are toothed at intervals of about one-third to two-thirds of an inch, the teeth are soft and incurved. *Peduncles* solitary or twin, from the young shoots at the bases of the branches, decurved, with ascending tips, three to four inches long. *Flower* three to four and a half inches in diameter. *Calyx-lobes* triangular-ovate, acuminate. *Corolla* clothed on the surface and margins with long hairs, which are very dense towards the throat; lobes five, ovate, acuminate, transversely rugose, dark vinous purple, the folds towards the base bright orange-yellow. *Processes* of the column deep purple, exerted.—*J. D. H.*

Fig. 1, column:—*magnified*.



(2037)

STAPELIA STRICTA. UPRIGHT STAPELIA

Class and Order.

PENTANDRIA MONOGYNIA.

Generie Character.

Asclepiadea. *Nectarium* duplici stellula tegente genitalia.

Specific Character.

STAPELIA *stricta*; corolla quinquefida laciniis ovatis acuminatis planiusculis nudis, ligulis obtusis, rostris brevissimis, ramis tetragonis simplicibus stictis basi floriferis.

There is a good deal of affinity between this species and *divaricata*. The shape and denticulation of the stems, as well as the colour of the corolla, are exactly similar, but in other respects there is great difference; the laciniæ of the corolla are not ciliated in *stricta*, nor rolled back at the margins, nor so sharp pointed as in *divaricata*; the peduncles are shorter than the flower, and grow from near the base, and the branches are simple and quite erect, in both which characters it differs widely from *divaricata*.

It has been sometimes called in our collections *STAPELIA rufa*; but has no similarity to the *rufa* of Masson; nor do we find that this species has been recorded by any author.

Native of the Cape of Good-Hope. Requires a good greenhouse or dry stove. Flowers in October. Communicated by N. S. HODSON, Esq. Abbey-House, Bury St. Edmunds.



STAPELIA VARIEGATA. VARIEGATED
STAPELIA.

Class and Order.

PENTANDRIA DIGYNIA.

Generic Character.

Contorta. *Nectarium* duplici stellula tegenté genitalia.

Specific Character and Synonyms.

STAPELIA *variegata* denticulis ramorum patentibus. *Lin Syst. Vegetab. p. 260. Sp. Pl. p. 316.*

ASCLEPIAS *aizoides africana* *Bradl. suc. 3. p. 3. t. 22.*

This very singular plant is a native of the Cape of Good Hope, where it grows and flourishes on the rocks with the *Stapelia hirsuta*.

If these plants be kept in a very moderate stove in winter, and in summer placed in an airy glass-case where they may enjoy much free air, but screened from wet and cold, they will thrive and flower very well; for although they will live in the open air in summer, and may be kept through the winter in a good green-house; yet these plants will not flower so well as those managed in the other way. They must have little water given them, especially in winter.

It is very seldom that the *variegata* produces seed-vessels in this country; MILLER observes, in upwards of forty years that he cultivated it, he never saw it produce its pods but three times, and then on such plants only as were plunged into the tan-bed in the stove.

This plant may be propagated without seeds, as it grows fast enough from slips; treatment the same as that of the Creeping Cereus, which see.

It takes its name of *Stapelia* from *Stapel*, a Dutchman, author of some botanical works, particularly a Description of THEOPHRASTUS's plants.



STAPELIA VERRUCOSA. WARTY-FLOWERED
STAPELIA.

Class and Order.

PENTANDRIA DIGYNIA.

Generic Character.

Contorta. *Nectarium* duplici stellula tegente genitalia.

Specific Character and Synonyms.

STAPELIA *verrucosa*; ramis pluribus suberectis, dentibus ramorum acutis decussatis, corolla plana verrucosa, medio parum elevata in pentagonum, genitalia ambiens, scabrum. *Masson Stap.* p. 11. n. 8. t. 8.

STAPELIA *verrucosa*. Willd. *Sp. Pl.* 1. 1291.

DESC. *Branches* affurgent; teeth distant, horizontal. *Peduncles* near the base of the branch, sometimes from the fork of the division either solitary or two together; sometimes longer than the flower, at others shorter. Corolla subcampanulate, five-cleft halfway: laciniae acute, revolute at the point, yellow, spotted with dark purple: bottom concave: margin slightly raised into an obtusely pentagonal ring; organs of fructification raised on a short thick spotted column; under star erect, laciniae emarginate; upper star five yellow oval bodies.

This species of *Stapelia* does not exactly correspond with the *verrucosa* of MASSON, but so nearly agrees in the most material points that we do not hesitate in considering it as the same. The colour in the branches is accidental and appears to be owing to keeping the plant very dry.

Our drawing was taken at Messrs. WHITLY and BRAME'S, Old Brompton, the description from a plant sent us by JOSEPH WALKER, Esq. who has a very copious collection of *Stapelias*, among other rare plants, in his extensive collection at Stockwell.



TAB. 6220.

TALINUM ARNOTII.

Native of South Africa.

Nat. Ord. PORTULACEÆ.

Genus TALINUM, *Adans. (Benth. et Hook. f., Gen. Plant., vol. i., p. 157).*

TALINUM *Arnotii*; caudice robusto ligneo, ramis annotinis pedalibus, foliis brevissime petiolatis late oblongo-orbiculatis apiculatis basi et apice rotundatis, floribus axillaribus, pedunculis foliis 2-3-plo longioribus, floribus fere 1 poll diametro.

This is one of a collection of plants of a very remarkable habit, which was sent to Kew in 1867 by the Hon. David Arnot, then Commissioner for the Griqua States, and residing at Eskdale, Albania. For the most part they presented more or less cylindrical or spindle-shaped woody stocks, of almost stony hardness, which serve as reservoirs of moisture and nourishing matter during the scorching droughts of the dry, stony district they inhabit. Of these some remained for several years in the stove before they showed any signs of life, and when they did so they proved to belong to very different natural Orders. Some were *Asclepiadaceæ* of the genus *Ceropegia* and its allies, others *Cucurbitaceæ*, others *Convolvulaceæ*, and still others *Geraniaceæ*, *Leguminosæ*, and *Portulacææ*, to which latter belongs the subject of the present plate, which, though imported as above stated in 1867, did not flower till six years afterwards.

The genus *Talinum* is represented in South Africa by a widely diffused species, the old *T. caffrum* (to which the present is perhaps, too, nearly allied), which differs in the narrow leaves contracted at both ends, and, judging from dried specimens, the much smaller flowers. The only other Old World species is *T. cuneifolium*, Willd, a native of Tropical Africa and Arabia, which extends eastwards into Western India. It has leaves more like those of *T. Arnotii* than are those of *T. caffrum*, but they are cuneate at the base, and the flowers are racemose.

DESCR. *Trunk* or *root-stock* five to eight inches long,
MARCH 1ST, 1876.

cylindric, woody, one to two inches in diameter, covered with light brown bark. *Branches* a foot long, erect, soft, succulent, cylindric, slender, sparingly divided, green. *Leaves* attenuate, almost sessile, one and a half inches long and nearly as broad, broadly orbicular-oblong, rounded at both ends, apiculate at the tip, smaller upwards, green, fleshy, margins quite entire, slightly recurved. *Peduncles* axillary, one-flowered, longer than the leaves, spreading, with a small bract, and sometimes a rudimentary flower-bud above the middle. *Flowers* one inch in diameter. *Sepals* ovate, acute, green. *Petals* obovate, acute, pale golden yellow. *Stamens* half the length of the sepals. *Ovary* almost globose; style short; stigmas slender, recurved.—*J. D. H.*

Fig. 1, Peduncle and flower; 2, ovary; 3, transverse section of ditto:—*magnified.*



TALINUM POLYANDRUM.

Many-stamened Talinum.

Nat. Ord. PORTULACÆÆ.—DODECANDRIA MONOGYNIA.

Gen. Char. Calyx diphyllus, deciduus, foliolis ovatis, oppositis. Corollæ petala 5, hypogyna, libera vel basibus coalita, tenerima, fugacia. Stamina 10–30 (et ultra), petalorum unguibus aggregatim inserta; filamenta filiformia; antheræ biloculares, ovatæ, longitudinaliter dehiscentes. Ovarium liberum, uniloculare. Ovula plurima, placentæ basilari funiculis distinctis inserta, amphitropa. Stylus filiformis, apice trifidus, lobis patulis intus stigmatosis, vel stigmata 3, sessilia, arete conniventia. Capsula chartacea, nitida, unilocularis, trivalvis, epicarpio ab endocarpio haud soluto, placenta basilari. Semina plurima, lenticulari- vel globoso-reniformia, testa crustacea, nitida, levissima, striata, umbilico stropholata. Embryo annularis, albumen farinaceum cingens.—Herbæ interdum sufrutescentes, carnosæ, glaberrimæ, in America tropica et subtropica copiosæ, parcius in Capite Bonæ Spei, Arabia Felici et Oceania intertropica crescentes, foliis alternis vel suboppositis, integerrimis, exstipulatis, floribus cymosis, racemosis vel solitariis, axillaribus, purpureis flavis vel albis, fugacibus.—Endl.

TALINUM *polyandrum*; annum glabrum, caulibus ascendentibus, foliis late lineari-spathulatis carnosis obtusis supra linea media canaliculatis, pedunculis terminalibus elongatis apice racemosis 5–8-floris, pedicellis elongatis susecundis gracillimis demum reflexis, petalis late cuneatis remotis, staminibus numerosis, stigmatibus 3 filiformibus sessilibus pubescenti-glandulosus.

The two genera *Talinum* and *Calandrinia* (formerly considered to be almost wholly confined to the New World) have long appeared to me to be undistinguishable the one from the other. De Candolle says of the latter, “vix a *Talino* differt:” and Messrs. Torrey and Gray remark that it is intermediate between *Talinum* and *Claytonia*. Of late years several Australian species have been referred to *Calandrinia*. Among the first was *C. calyptrata*, Hook. fil. (Ic. Plant. t. 296), detected by Mr. Gunn in Van Diemen’s Land (who also discovered there what has been referred by Dr. Hooker to *Claytonia*—*Claytonia Australasica*, Ic. Plant. t. 293). Major Mitchell detected two species in eastern tropical Australia, which are described in the journal of that traveller.

Three species (together with *C. calyptrata* above mentioned) are enumerated in Dr. Lehmann's 'Plantæ Preissianæ' of the Swan River Settlement, besides a plant referred to *Talinum*; and it is from this country that we raised our present plant from seeds sent by Mr. Drummond in 1853. Among the species of Preiss, none accords with this. *C. Balonensis*, Lindl. in Mitch. (foliis angustatis obovato-lanceolatis alternis oppositisque, racemis secundis multifloris, caulibus multo longioribus, floribus conspicuis polyandris), seems not far distant from the present species; but, with no further marks to guide me, and considering the widely different locality, it will be safer to keep it distinct.* I have referred it to *Talinum* because of the numerous stamens, exceeding even what are attributed to *Talinum*. It flowered in the greenhouse in August, 1854.

DESCR. *Root* slender, descending, fusiform, annual, bearing several leaves at the top, and several spreading, ascending, terete, slender, reddish *stems*, scarcely a span long: these have distant, alternate, or very rarely opposite, broad-linear, subspathulate, sessile, entire, obtuse, fleshy, thickened *leaves*, having a depressed longitudinal central line above, quite plane below, with no conspicuous costa or nerve; the largest of them are three inches long. *Peduncles* terminal or subaxillary, including the racemes longer than the stem, very slender. *Pedicels* subsecund, long, filiform, at length reflexed. *Calyx* of two, opposite, broad-ovate, cymbiform, green *sepals*. *Petals* five, spreading apart from each other, red-purple. *Stamens* very numerous, spreading, about half as long as the petals. *Anthers* small, yellow. *Ovary* subglobose, crowned with three, sessile, filiform, glanduloso-pubescent *stigmas*: *style* none.

Fig. 1. Calyx and pistil:—*magnified*.

* I have, since the above was in type, seen authentic specimens of Dr. Lindley's plant. It is quite different from ours, having much broader and more spathulate leaves and larger flowers; but it is closely allied to our present species in habit, and in the very numerous stamens and absence of style.

TALINUM REFLEXUM. REFLEX-FLOWERED
TALINUM.

Class and Order.

DODECANDRIA MONOGYNIA.

Generic Character.

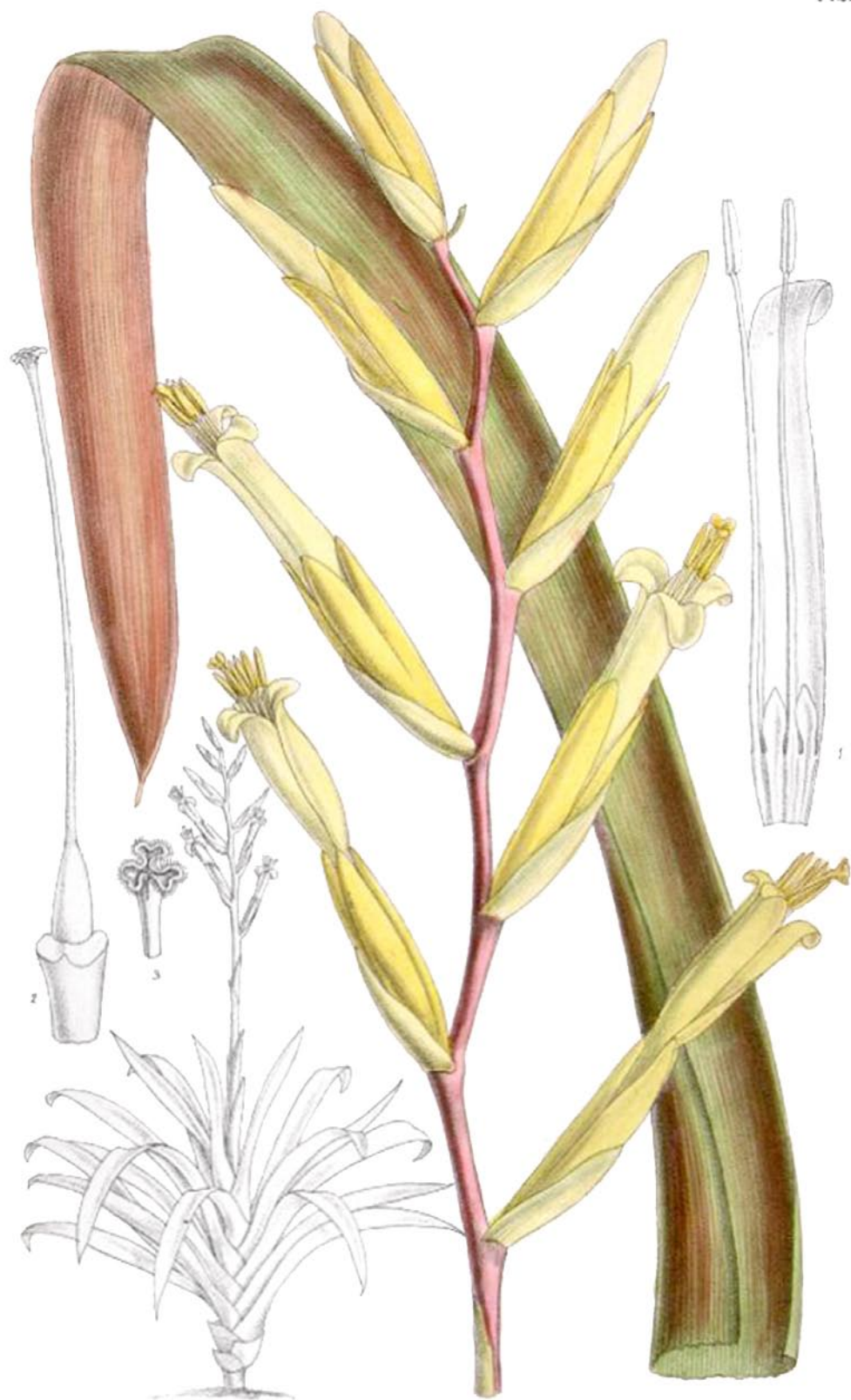
Cor. 5-petala. *Cal.* 2-phyllus. *Capf.* 3-valvis, polysperma.

Specific Character and Synonyms.

TALINUM *reflexum*; foliis lanceolatis sessilibus oppositis,
florum panicula ramosa. *Cavan. Icon. v. 1. p. 1. t. 1.*
Haworth Plant. Succul. p. 124. Ejusdem Misc. Nat. p. 141.
TALINUM *patens*. *β. Willd. Sp. Pl. v. 2. p. 863.*

This species is not recorded in the new edition of the Hortus Kewensis. It appears to be quite distinct from *patens*, of which WILLDENOW considers it as a variety. It has certainly no specific affinity with the figure in the Botanist's Repository, quoted in the Hortus Kewensis as a representation of *patens*; which figure, however, according to Mr. HAWORTH, is altogether different from TALINUM *patens*.

Native of South-America. Cultivated in the stove. Propagated by seeds, which it produces freely; being annual or biennial. Introduced before the year 1800. Communicated from Mr. VERE's collection, flowering in August 1811.



MS del J N Fitch lith

Vincent Brooks, Day & Son. Imp.

L. Brown & Co London

TAB. 7121.

TILLANDSIA (VRIESEA) AMETHYSTINA.

Native of South Brazil.

Nat. Ord. BROMELIACEÆ.—Tribe TILLANDSIEÆ.

Genus TILLANDSIA, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. iii. p. 669.)

TILLANDSIA (*Vriesea*) *amethystina*; acaulia, foliis 20–30 dense rosulatis lanceolatis tenuibus flexilibus arcuatis viridibus brunneo tinctis tenuiter lepidotis, pedunculo gracili erecto foliis leviter eminente, floribus 8–12 in spicam laxissimam erectam dispositis, bracteis ovatis flavo-viridibus calyce brevioribus, sepalis lineari-oblongis citrinis, petalis lingulatis citrinis calyce multo longioribus basi intus squamatis, genitalibus breviter exsertis.

T. *amethystina*, *Baker in Journ. Bot.* 1888, p. 104; *Handb. Bromel.* p. 218.

Vriesea amethystina, *E. Morren in Belg. Hort.* 1884, p. 330, t. 15, 16.

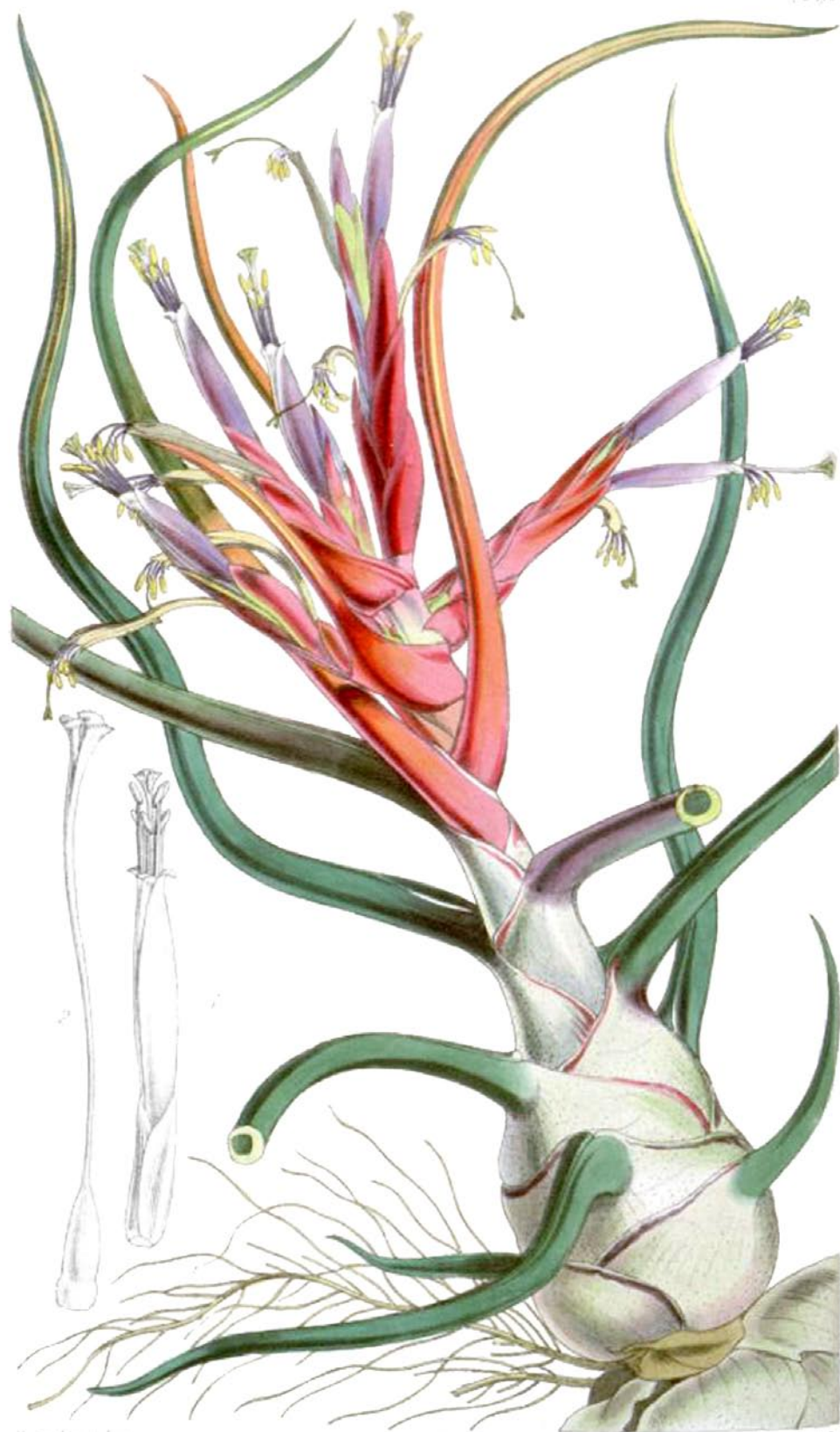
This is one of the many fine Tillandsias of the section *Vriesea* which have been discovered lately in the southern and central provinces of Brazil, and introduced into cultivation in Europe, mainly through the instrumentality of our indefatigable correspondent, Dr. Glaziou, of Rio Janeiro. The present species, from its comparatively small size, is more manageable in a conservatory than several of its neighbours, and is conspicuous by its bright yellow flowers, which last for a considerable time. Our drawing was made from a plant that flowered at Kew in Oct. 1889, which was purchased from the collection of the late Professor Edward Morren soon after his death in 1886. The leaves are very ornamental.

DESCR. Acaulescent. *Leaves* twenty or thirty, densely rosulate, lanceolate from a dilated clasping base, a foot or a foot and a half long, not more than an inch broad at the middle, arcuate, flexible, obscurely lepidote, green more or less tinged with brown-purple, especially on the back. *Peduncle* slender, erect, a little longer than the leaves. *Inflorescence* a lax erect spike six or eight inches long; flowers eight to twelve, sessile, erecto-patent; bracts ovate, yellowish-green, about an inch long. *Calyx* pale yellow, an-inch and a half long; sepals linear oblong. *Petals* lin-

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gulate, bright lemon-yellow, an inch longer than the calyx, spreading only at the tip, furnished inside near the base with a pair of distinct scales at the insertion of the inner row of stamens. *Stamens* a little longer than the petals; filaments filiform; anthers linear. *Ovary* ampullæform; style long, erect, subulate; stigmas short, not spirally twisted.—*J. G. Baker.*

Fig. 1, Petal, seen from inside; 2, pistil; 3, apex of style with stigmas:—*all enlarged.*



TAB. 4288.

TILLANDSIA BULBOSA; *var.* *picta*.

Bulbous Tillandsia; coloured *var.*

Nat. Ord. BROMELIACEÆ.—HEXANDRIA MONOGYNIA.

Gen. Char. *Perigonii* liberi sexpartiti lacinia exteriores calycine, æquales basi cohærentes spiraliter convolutæ, duo altius inter se connatæ, tertia minor, interiores *petaloideas* inferne in tubulum convolutæ v. connatæ, superne patentes, basi intus nude v. rarius squamosæ. *Stamina* 6, hypogyna; *filamenta* linearia, alterna, sæpius perigonii laciniis interioribus adhærentia; *antheræ* incumbentes, basi sagittato-emarginatæ. *Ovarium* liberum, triloculare. *Ovula* in loculorum angulo centrali prope basin plura, biseriata, adscendentia, anatropa. *Stylus* filiformis; *stigma* trifidum, lobis abbreviatis v. filiformibus aut apice dilatatis, rectis v. contortis. *Capsula* cartilaginea, linearis v. ovata, trilocularis, loculicido-trivalvis, valvis endocarpio mox soluto duplicatis, explanatis v. tortis. *Semina* plurima e basi dissepimentorum erecta, lineari-clavata, stipitata, *stipite* pilis papposis cincto, *testa* dura, *chalaza* terminali mamillari. *Embryo* in basi *albuminis* farinosi rectus, extremitate radiculari infera.—Herbæ in *America tropica et extra-tropica calidiore indigenæ*; ut plurimum *pseudo-parasiticæ*, *lepidotæ*, *caulibus foliosis simplicibus v. rarius ramosis, floribus spicatis v. paniculatis, rarius solitariis, bracteatis.* Endl.

TILLANDSIA *bulbosa*; foliis (subpaucis) e basi latissima circa bulbum vaginata longe subulatis rigidis coriaceis tereti-convolutis, superioribus basi angustioribus (in β . coloratis), spica ramosa bracteata bracteis ovatis distichis (sæpe coloratis), petalis acuminatis purpureis brevioribus, staminibus exsertis, filamentis infra apicem dilatatis.

TILLANDSIA *bulbosa*. *Hook. in Exot. Fl. t.* 173.

β . *picta*; major, foliis superioribus bracteisque coccineis. (TAB. NOSTR. 4288.)

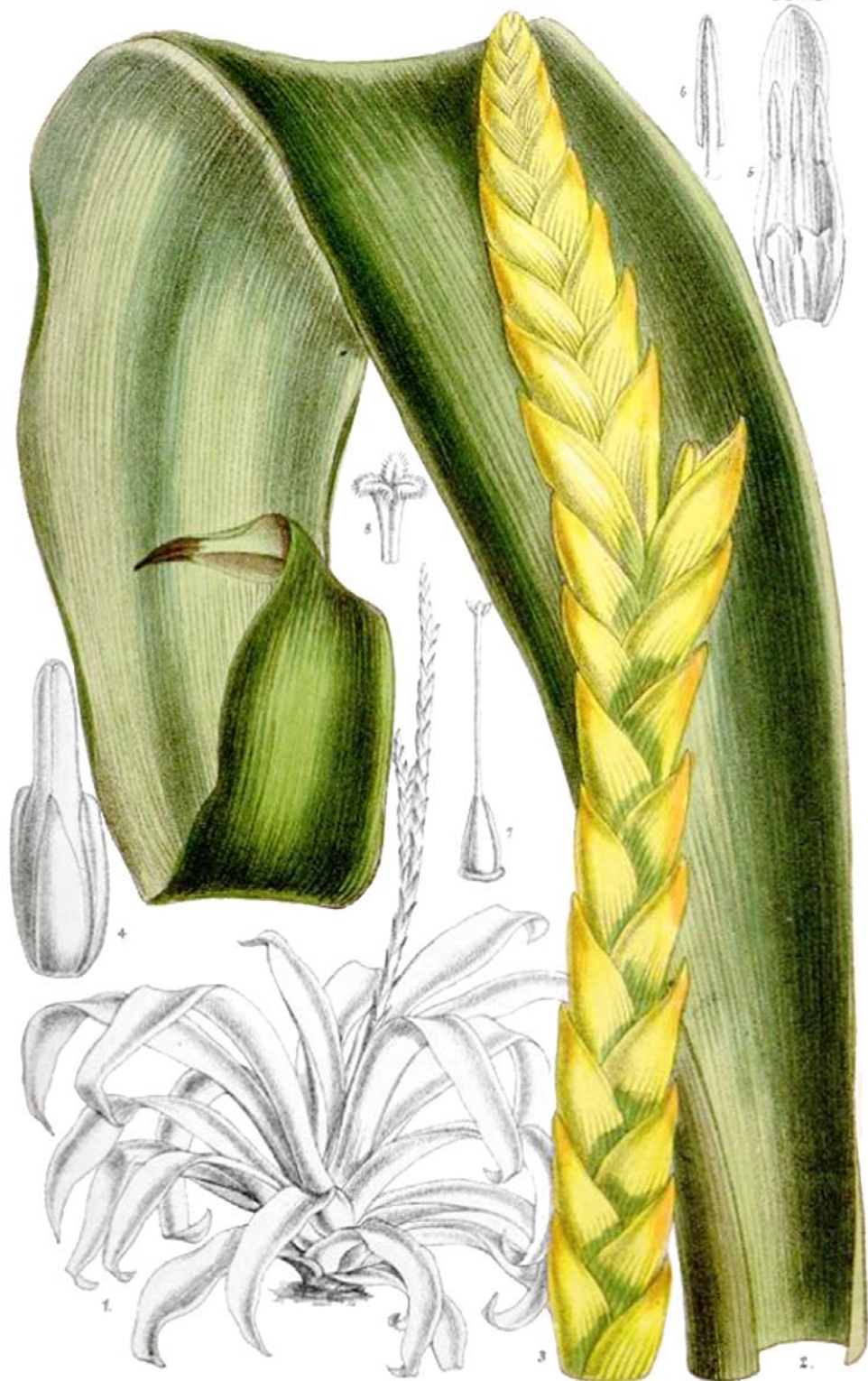
Few persons, who have the opportunity of comparing this richly coloured plant with the figure above quoted, in the 'Exotic Flora,' would at first sight perhaps consider them to represent the same species; yet, except that this is a better grown specimen, with a more perfect spike, and that the upper leaves and bracteas are of a bright scarlet hue, tinged with yellow, I see no difference, and am bound to consider them the same. The original plant was transmitted from Trinidad, by the late Baron de Schack; our Garden is indebted for this splendid variety to the mission of Mr. Purdie, who sent healthy specimens from Jamaica, which on being simply suspended by a piece of wire, from the beam of a

moist stove, flowered in the winter of 1846–7. In proof that the highly coloured leaves afford no permanent character, these became, after flowering, of the same uniform green as the rest of the foliage.

The *Tillandsias* exhibit strange forms, and many of them highly beautiful inflorescence; but they are very unintelligible, when studied in the Herbarium, and little sought after by those who send home living plants; so that our knowledge of the species is but imperfect. It is to be regretted, too, that they are difficult to keep long in a state of cultivation, generally dying soon after flowering, more frequently without blossoming at all.

DESCR. *Plants* clustered, two or more united at the base, and sometimes growing in two opposite directions, and in the instance here represented, slightly attached to the branches of trees by slender feathery fibres. *Stem* simple, leafy at the base, immediately swollen and bulbiform. *Leaves* a span or more long, subulate, coriaceous, rigid, waved and somewhat spirally twisted, terete from the singularly incurved or almost convolute sides, dark green, naked, the bases of the lower ones singularly dilated into very broad membranaceous sheathing bases to the bulb, pale-coloured with a red margin, dotted; the upper leaves gradually smaller and almost bracteiform, richly tinged with scarlet and yellow. *Spike* racemose, the branches compressed, and clothed with distichous, scarlet, imbricated *bracteas*, entirely concealing the flower-buds. *Flowers* protruded beyond the bracteas. *Calyx* of three green convolute *sepals*. *Corolla* of three linear-lanceolate, purple, acuminate *petals*, twice as long as the calyx. *Stamens* and style exserted. *Filaments* dilated below the apex. *Stigmas* three, cuneate, fringed at the edge.

Fig. 1. Flower. 2. Pistil:—*magnified*.



M.S. det. J.N. Pritch. det.

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TAB. 6906.

TILLANDSIA CHRYSOSTACHYS.

Native of Peru.

Nat. Ord. BROMELIACEÆ.—Tribe TILLANDSIEÆ.

Genus TILLANDSIA, Linn. (*Benth. et Hook. f. Gen. Pl.* vol. iii. p. 669.)

TILLANDSIA (*Vriesea*) *chrysostachys*; acaulis, foliis 20–30 dense rosulatis lanceolatis falcatis viridibus haud lepidotis dorso deorsum brunneo tinctis, pedunculo elongato foliis pluribus reductis rigidulis imbricatis tecto, spicis distichis elongatis simplicibus vel furcatis, bracteis ovatis navicularibus imbricatis citrinis, floribus bracteis æquilongis, sepalis liberis lanceolatis, petalis ligulatis obtusis luteis basi appendiculatis, staminibus petalis brevioribus, stylo elongato, stigmatibus brevibus patulis.

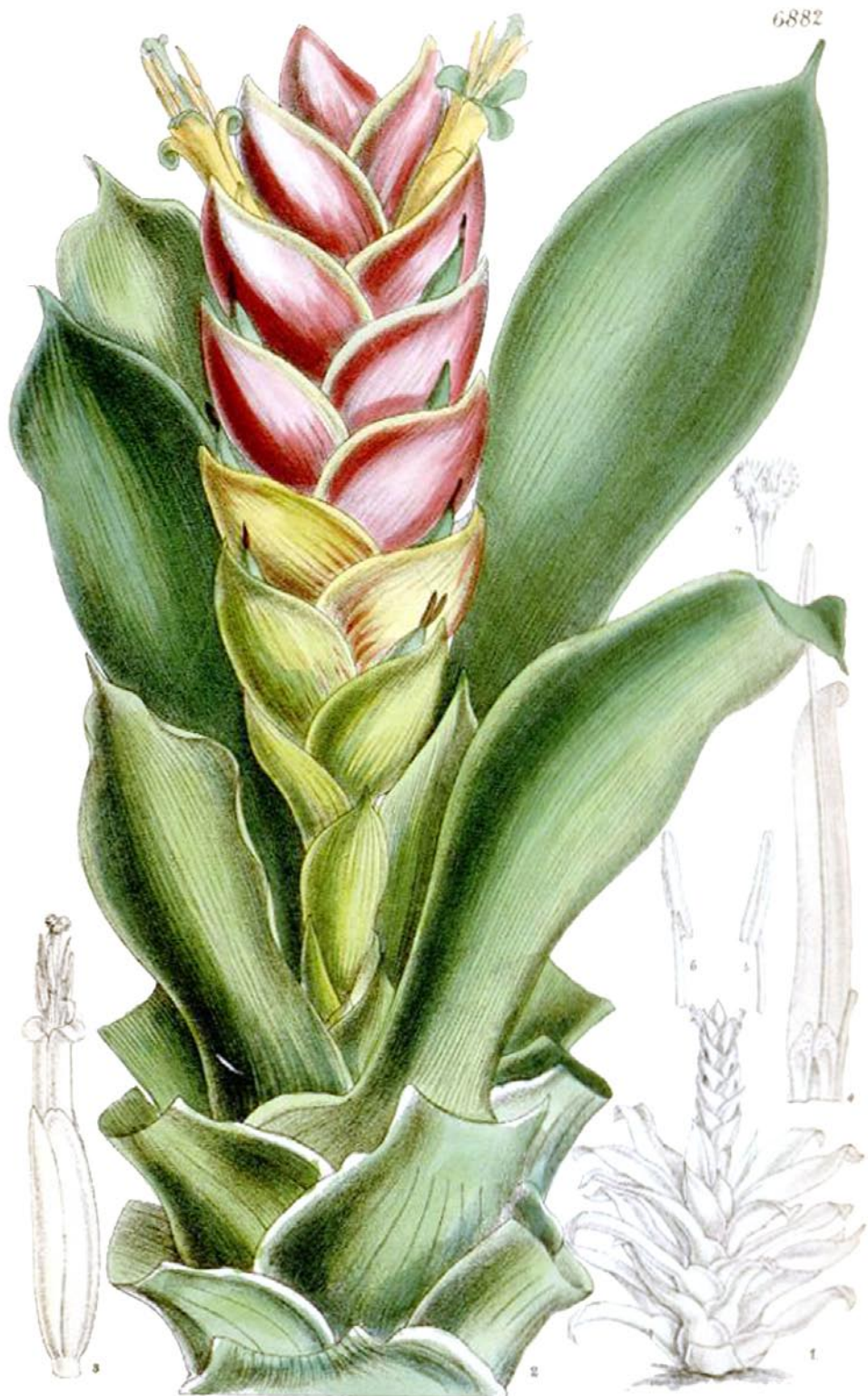
Vriesea chrysostachys, *E. Morren in Belg. Hort.* vol. xxxi. (1881), p. 87.

This beautiful new species of *Vriesea* was introduced into cultivation by Messrs. Veitch in the year 1881. They received it from their collector, Mr. Davis, who discovered it in the forests of the Peruvian Andes. It was described at the time by the late lamented Professor Edward Morren, but has never been figured. The striking point about it is the long yellow spike, in allusion to which the specific name was given, and which remains in good condition for a long time, as the coloration resides mainly in the coriaceous bracts. Our drawing was made from a plant that flowered at Kew in May, 1886.

DESCR. Acaulescent. *Leaves* about thirty, arranged in a dense rosette, lanceolate, thin in texture for the Order, entire, a foot or a foot and a half long, two or two and a half inches broad at the middle, bright green on the face, without any bands or spots, paler green on the back, tinged towards the base with claret-brown. *Peduncle* stiffly erect, about a foot long, hidden by the sheathing imbricated ovate adpressed bract-leaves. *Spikes* one or two, distichous, half a foot or a foot long; bracts ovate, navicular, an inch long, imbricated, bright lemon-yellow. *Flowers* not protruded beyond the bracts. *Sepals* free,
NOV. 1ST, 1886.

lanceolate, half an inch long. *Petals* ligulate, obtuse, bright yellow, an inch long, each appendiculate with a quadrate membranous scale above the base. *Stamens* shorter than the petals. *Pistil* nearly as long as the corolla; style slender, elongated; stigmas short, spreading.—*J. G. Baker.*

Fig. 1, Whole plant, *much reduced*; 2, leaf; 3, spike, both *life-size*; 4, a complete flower; 5, a petal and three stamens; 6, a single anther; 7, complete pistil; 8, stigmas:—*all more or less enlarged.*



M.S. del. J.N. Pinch. lith.

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TAB. 6882.

TILLANDSIA (Vriesea) INFLATA.

Native of Brazil.

Nat. Ord. BROMELIACEÆ.—Tribe TILLANDSIEÆ.

Genus TILLANDSIA, Linn.; (*Benth. et Hook. f. Gen. Pl.* vol. iii. p. 669.)

TILLANDSIA (Vriesea) *inflata*; acaulis, foliis 15–20 dense rosulatis oblanceolatis cuspidatis basi dilatatis utrinque viridibus glabris, pedunculo brevi erecto foliis bracteiformibus imbricatis occulto, floribus 10–12 alternis in spicam densam disticham dispositis, bracteis magnis ovato-navicularibus imbricatis superioribus splendide rubris luteo marginatis infimis viridibus, pedicellis subnullis, sepalis lanceolatis pallide luteis bracteis paulo brevioribus, petalis oblanceolatis luteis apice patulis viridulis basi squamis 2 semiadnatis appendiculatis, genitalibus exsertis, antheris linearibus leviter versatilibus, lobis stigmatosis orbicularibus patulis.

Vriesea psittacina, var. Truffantiana, André in *Journ. Soc. Nat. et Cent. Hort. France*, 1881, p. 87.

V. incurvata, Morren in *Belg. Hort.* vol. xxxii. (1882), p. 52, tab. 2, non Gaudich.

V. inflata, Wawra *Itin. Prin. Cob.* vol. i. p. 161; Antoine Brom. p. 28, t. 18.

V. carinata, var. inflata, Wawra in *Oester. Bot. Zeitschrift*, vol. xxx. (1883), p. 184.

This is one of the most showy of all the numerous Tillandsias of the subgenus *Vriesea* which have been brought into cultivation of late years. Of the older-known types it comes nearest to *T. psittacina*, Hook. (BOT. MAG. tab. 2841), but here the flowers are so close that the large bright-coloured bracts overlap one another. It is a native of the woody coast region of the southern half of Brazil. It was introduced into cultivation by M. Binot in 1880, and was first flowered by M. Truffant at Versailles. Our drawing was made from a plant that flowered at Kew in December, 1885. Botanical science has lately sustained a heavy loss by the death within a short time of the two continental botanists who had specially devoted themselves to Bromeliaceae, both of whom, as will be seen from the synonymy cited, had figured and described the present plant.

DESCR. Acaulescent. Produced *leaves* about twenty, forming a dense rosette, oblanceolate from an ovate dilated

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base above two inches broad; lamina six or eight inches long, an inch and a half broad above the middle, deltoid and cuspidate at the apex, bright green and glabrous on both surfaces. *Peduncle* central, erect, three or four inches long, quite hidden by the imbricated bract-leaves. *Spike* simple, erect, distichous, five or six inches long, two inches broad; flowers ten or twelve; bracts ovate-navicular, an inch and a half long and broad, all except the lowest, which are greenish, bright red, with a narrow yellow border. *Calyx* nearly as long as the bract, pale yellow; sepals lanceolate. *Corolla* cylindrical, bright lemon-yellow, protruded half an inch beyond the bract; petals obtuse, with a spreading tip tinged with green, appendiculate at the base with two half-adnate scales. *Stamens* rather longer than the petals; anthers linear, slightly versatile; pollen bright yellow. *Pistil* a little longer than the stamens; stigmatic lobes orbicular, spreading.—*J. G. Baker.*

Fig. 1, Whole plant, much reduced; 2, whole plant; 3, a flower, *both life-size*; 4, a petal; 5, front view of anther; 6, back view of anther; 7, stigma:—*all enlarged.*



TAB. 5892.

TILLANDSIA (PITYROPHYLLUM) IONANTHA.

Native of Brazil.

Nat. Ord. BROMELIACEÆ.—Tribe TILLANDSIÆ.

Genus TILLANDSIA, *Linn.*; (*Endl. Gen. Plant*, p. 183).

TILLANDSIA (Pityrophyllum) *ionantha*; *cespitosa*, subacaulis, surculosa, sparse albo-furfuracea, foliis $2\frac{1}{2}$ —pollicaribus subulato-lanceolatis erecto-recurvis coriaceis antice infra apicem pungente acuminatis canaliculatis margine ciliolatis, summis bracteiformibus erectis roseo-kermesinis flores subæquantibus, floribus paucis sessilibus immersis, bracteis lanceolatis, sepalis lineari-lanceolata subæquantibus, petalis $1\frac{1}{2}$ —pollicaribus, pallide violaceis ungue elongata lineari, lamina ovato-spathulata obtusa, filamentis filiformibus, antheris parvis exsertis oblongis, stylo exserto, stigmatibus 3 parvis cuneatis truncatis.

TILLANDSIA *ionantha*, *Planch. in Flore de Serres*, t. 1006.

TILLANDSIA *erubescens*, Hort. Herrenhausen.

PITYROPHYLLUM *erubescens*, *Beer. die Fam. der Bromel.*, p. 79.

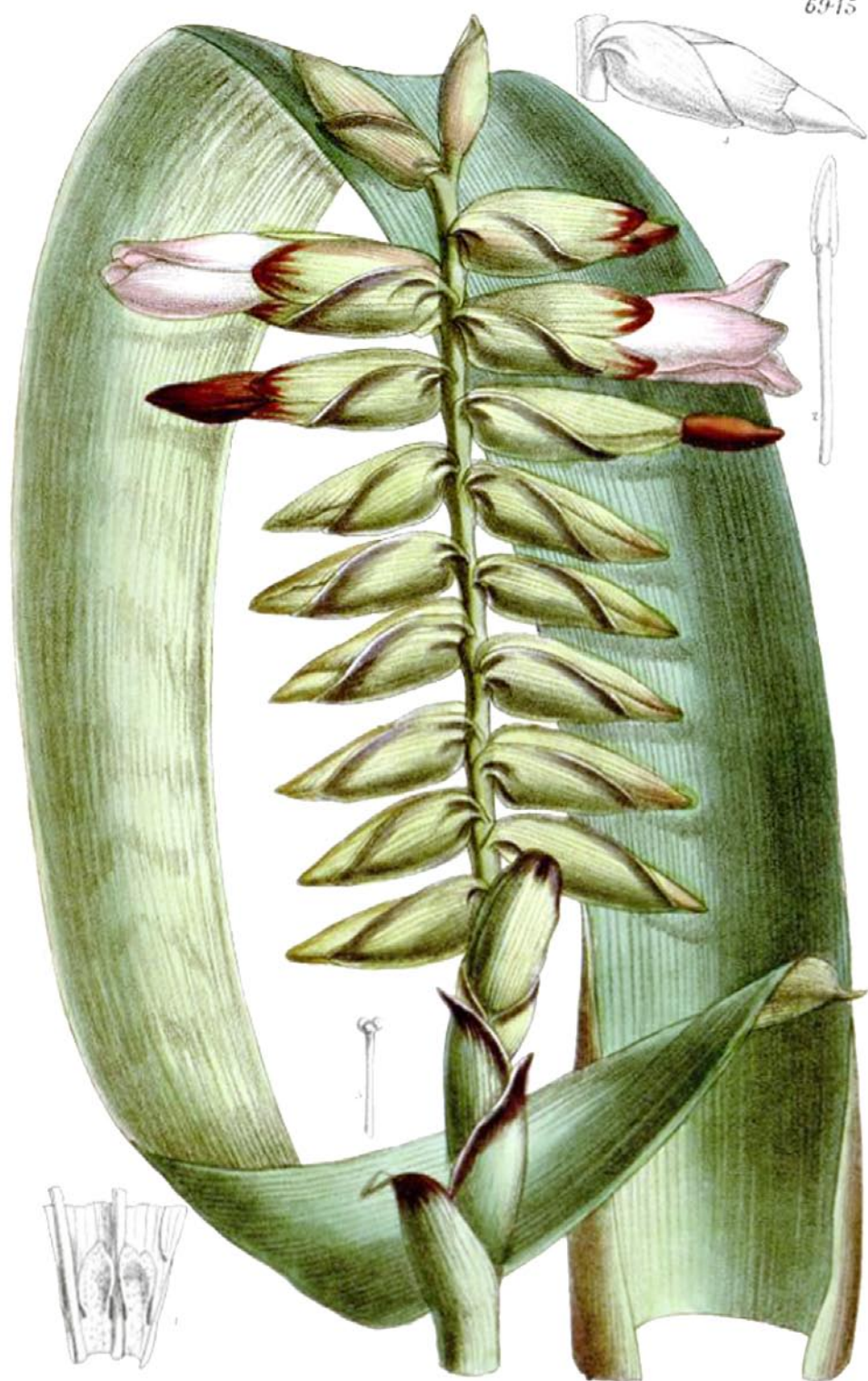
I refer this charming little plant, with some hesitation, to Planchon's *Tillandsia ionantha*, which I know only from the plate cited above, and the illustrious French botanist's description, which he is careful to say is drawn up from the figure prepared for the "Flore de Serres;" he not having had access to the specimens. The Belgian plate in question represents a larger plant than that here figured; five inches high, with rather more obtuse points to the leaves, deeper coloured violet flowers, and less exserted and smaller anthers; in all other respects the plants seem identical. Should they prove distinct however, I would suggest the name of *T. Scopus* for this, in allusion to its brush-like habit.

The plate here given was executed from a specimen
MARCH 1ST, 1871.

flowered by W. Wilson Saunders, F.R.S., at Reigate, which was procured by him from Mr. Marshall of Enfield; that figured in the "Flore de Serres" was in Mr. Van Houtte's collection at Ghent, and supposed to have come from Brazil.

DESCR. A small tufted epiphyte, three to four inches high, forming squarrose masses, dull green, sparingly covered with silvery scurfy scales. *Leaves* numerous, closely imbricate, two to two and a half inches long, recurved, subulate-lanceolate, very coriaceous, concave above, with a terete, sub-pungent tip, margins ciliate, dark green, paler towards the base; upper leaves more erect, of a bright rose colour, rather exceeding the inflorescence, at length wholly green. *Flowers* sessile, crowded at the tips of the branches. *Bracts* lanceolate, acuminate, keeled, equalling the sepals, which are subulate-lanceolate, and half as long as the claw of the petals. *Petals* pale violet, convolute by their linear broad claws, into a slender tube, limb short, spathulate, concave, suberect, obtuse. *Stamens* exserted, filaments very slender; anthers small, yellow. *Ovary* oblong, 3-gonous; style very slender, stigmas three, small, cuneate, truncate.—*J. D. H.*

Fig. 1, Leaf; 2, flower; 3, petal and stamen; 4, pistil:—*all magnified.*



M.S. Anal. J.N. Petch lith.

L. Reeve & C^o London.

Viscountess Grosvenor, T. & Son, London.

TAB. 6945.
TILLANDSIA JONGHEI.

Native of Brazil.

Nat. Ord. BROMELIACEÆ.—Tribe TILLANDSIEÆ.

Genus TILLANDSIA, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. iii. p. 669.)

TILLANDSIA (*Vriesea*) *Jonghei*; acaulis, foliis 30–50 dense rosulatis loratis recurvatis pedalis vel sesquipedalis vix lepidotis facie viridibus dorso pallide viridibus deorsum brunneo tinctis, pedunculo robusto subpedali foliis bractei-formibus multis parvis ovatis imbricatis, floribus 12–20 magnis Horizontaliter Spatulis in spicam disticham dispositis, bracteis ovatis acutis calyce viridulo glutinoso distincte brevioribus, sepalis oblongis obtusis, petalis albidis brunneo tinctis calyce subduplo longioribus, staminibus petalis brevioribus alternis basi squamis magnis appendiculatis, stylo brevi, fructu calyce paulo longiori.

Tillandsia Jonghei, *K. Koch in Wochens.* 1868, p. 91; *E. Morren in Belg. Hort.* 1874, p. 291, t. 12, 13.

Encholirion Jonghei, *Libon; K. Koch in Berl. Allgem. Gartenzeit.* 1857, p. 22.

Vriesea Jonghei, *E. Morren in Belg. Hort.* 1878, p. 257; Antoine, *Brom.* p. 24, t. 16.

This has nothing whatever to do with the genus *Encholirion* of Martius, under which it and one or two of its neighbours were originally published, and under which they still usually appear in trade catalogues. *Encholirion* is closely allied to *Dyckia*, and has long hard leaves, like those of a *Bromelia*, with spiny edges. It belongs really to *Vriesea*, which in the *Genera Plantarum* is classed as a sub-genus of *Tillandsia*, from which it differs only by having the petaloid stamens appendiculate with a pair of scales at the base. By discoveries and introductions during the last twenty years the number of species of *Vriesea* has been largely increased, and now upwards of fifty are known, most of which have been brought into cultivation. The present plant was sent from Central Brazil to Belgium by M. Libon in the year 1856. Our drawing was made from a plant that flowered at Kew last winter, which was purchased at the sale of the collections of the late Professor Morren.

DESCR. Acaulescent. *Leaves* thirty to fifty in a dense rosette, lorate, flexible, glabrous, a foot or a foot and a
JULY 1ST, 1887.

half long, an inch and a half broad at the middle, three inches at the dilated base, deltoid-cuspidate at the apex, plain green on the face, without either bands or spots, pale green on the back, tinged, especially towards the base, with claret-brown. *Peduncle* robust, a foot long; bract-leaves many, small, ovate, imbricated. *Flowers* twelve to twenty, arranged in a simple distichous spike, all spreading horizontally from the stout slightly flexuose rachis, which is flattened laterally opposite each flower; flower-bracts ovate, green, margined with claret-red, an inch long. *Calyx* green, glabrous, glutinose, a little longer than the bract. *Corolla* nearly twice as long as the calyx, petals yellowish-white, more or less tinged with coppery-brown. *Stamens* shorter than the petals, those opposite the petals appendiculate at the base with a pair of large scales. *Style* not much longer than the ampulleform ovary. *Capsule* a little longer than the calyx.—*J. G. Baker.*

Fig. 1, Base of petal, showing the insertion of the filament and its scales; 2, a stamen; 3, apex of style, *all more or less enlarged*; 4, bract, calyx and young capsule, *life-size*.



W. Fitch, del. & lith.

Vincent Brooks Day & Son, Imp.

TAB. 5850.

TILLANDSIA LINDENIANA.

M. Linden's Tillandsia.

Nat. Ord. BROMELIACEÆ.—HEXANDRIA MONOGYNIA.

Gen. Char. (Vide supra, TAB. 5229.)

TILLANDSIA (Wallisia) *Lindeniana*; foliis radicalibus confertis patenti-recurvis e basi lata ensiformi-subulatis supra glaberrimis subtus punctato-lepidotis integerrimis, caulinis brevibus erectis imbricatis spathaceis ovato-lanceolatis acutis, spica lanceolata disticha multiflora bracteis ovato-cymbiformibus subacutis, floribus magnis, sepalis elliptico-lanceolatis, petalorum limbo suborbiculari azureo basi ungueque albido, staminibus inclusis, stigmatis lobis erectis cohærentibus, ovulis in placentis multiseriatis.

TILLANDSIA (Wallisia) *Lindeniana*, *Regel, Gartenflora*, 1869, p. 193, t. 619; *Gard. Chron.* 1870, p. 859, cum ic. xylog.

TILLANDSIA *Lindenii*; *Morren, Belgique Hortic.*

This very handsome Brazilian *Tillandsia* appears to have been introduced by M. Linden from Brazil into Europe, through Mr. Wallis, and published almost simultaneously by Dr. Regel, of St. Petersburg, under the name of *Tillandsia Lindeniana*, and by Professor Morren, of Liege, under that of *Tillandsia Lindenii*. It is the largest flowered species of the genus known to me, and very remarkable for the curiously soft texture and hue of the deep violet-blue petals; the colour of which melts into a pure white at the base of the blade.

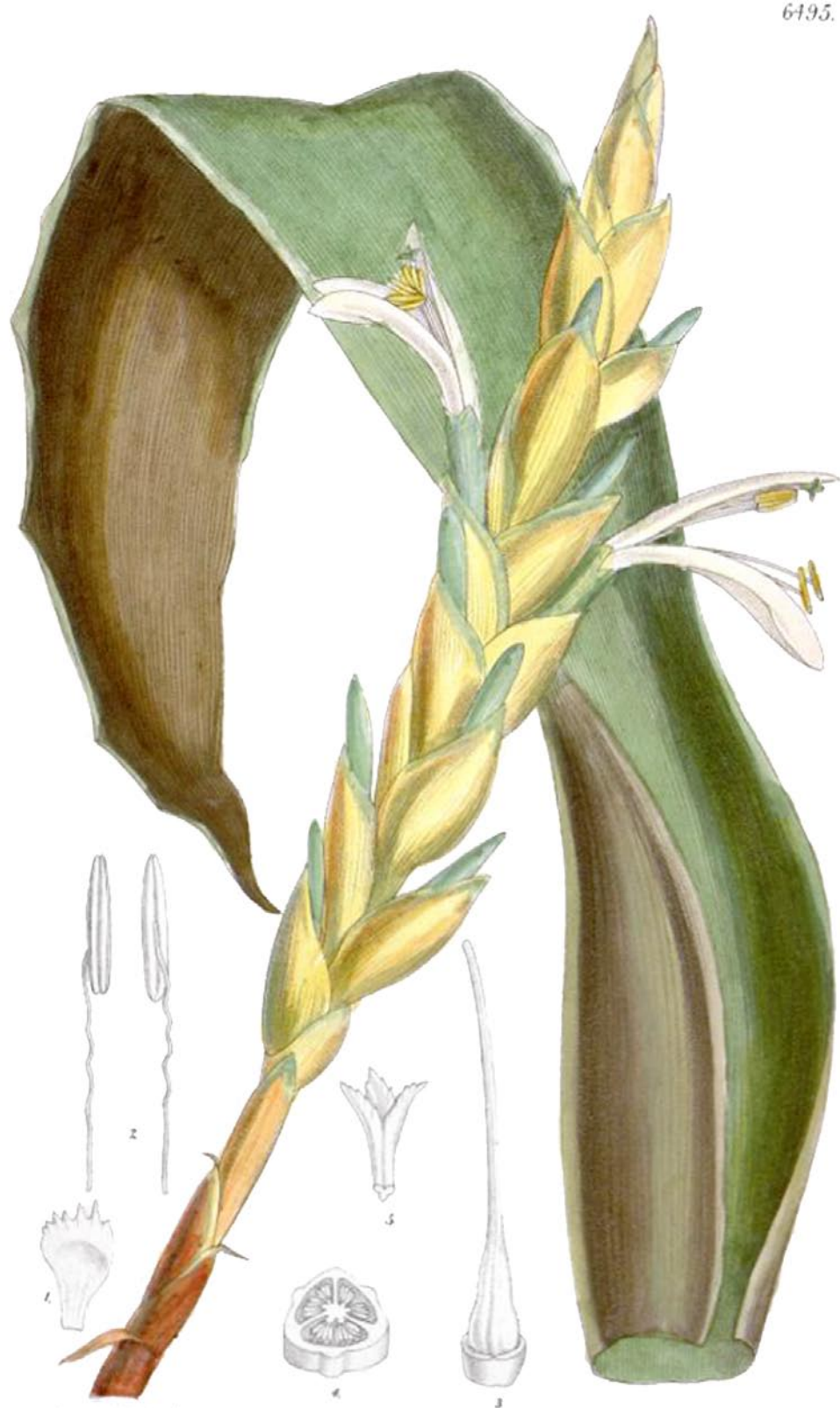
The specimen here figured was communicated by Mr. Ware, of the Hall Farm Nurseries, Tottenham, with whom it flowered in May of the present year; and it is stated in the *Gardener's Chronicle* to have been shown by Mr. Williams

AUGUST 1ST, 1870.

at a meeting of the Floral Committee of the Royal Horticultural Society.

DESCR. *Leaves* crowded at the base of the stem, spreading on all sides, and recurved, one to one and a half feet long, one to one and a half inches broad at the sheathing base, thence tapering to the subulate point; channelled on the pale opaque green face; convex on the minutely lepidote back; dull red-purple towards the base, and obscurely so along the veins; margins quite entire. *Scape* erect, one to one and a half feet high, rarely short, clothed with subdistichous, sheathing, green, erect, convolute, ovate, acuminate bracts one and a half to two inches long. *Spike* four to six inches long by one inch and a half broad, elliptic-lanceolate. *Bracts* distichous, closely imbricate, about ten pairs, boat-shaped, green, with flattened pink sides, subacute. *Flowers* two to five opening at once, two inches in diameter. *Sepals* linear-lanceolate. *Petals* violet-blue, with white claws and base of the limb, which is obovate-orbicular, apiculate; margins recurved; claws white, slender, free. *Stamens* included, in pairs opposite the claws of the petals; filaments linear, flattened; anthers small, linear-hastate, as narrow as the filaments. *Ovary* much shorter than the stamens, narrow ovoid; style as long; stigmas three, linear, erect, coherent; ovules numerous, in many series in each cell.—*J. D. H.*

Fig. 1, Claw of petal and stamens; 2, ovary; 3, transverse section of ditto:—*all magnified.*



X 50. J. R. Planch. Lich.

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TAB. 6495.

TILLANDSIA MALZINEI.

Native of Mexico.

Nat. Ord. BROMELIACEÆ.—Tribe TILLANDSIEÆ.

Genus TILLANDSIA, Linn.; (*Schulte's Syst. Veg.* vol. vii. p. lxvi. and 1199.)

TILLANDSIA (Conostachys) *Malzinei*; acaulis, foliis basalibus 15–20 dense rosulatis loratis falcatis chartaceis subpedalibus nullo modo lepidotis apice deltoideo-cuspidatis facie viridibus dorso rubro-brunneis verticaliter lineatis, pedunculo stricto erecto foliis breviori foliis reductis pluribus lanceolatis falcatis prædito, floribus 12–20 in spicam strictam subdensam multifariam disposito, bracteis magnis glabris ovatis navicularibus luteis vel rubris, pedicellis brevibus crassis, calyce protruso glabro sepalis oblongis obtusis, petalis lingulatis obtusis albidis calyce duplo longioribus basi squamatis, genitalibus petalis paulo brevioribus, antheris parvis luteis versatilibus.

T. *Malzinei*, *Baker in Kew Gard. Report*, 1878, p. 59.

Vriesea *Malzinei*, *E. Morren in Belg. Hort.* vol. xxiv. (1874), p. 313, tab. 14.

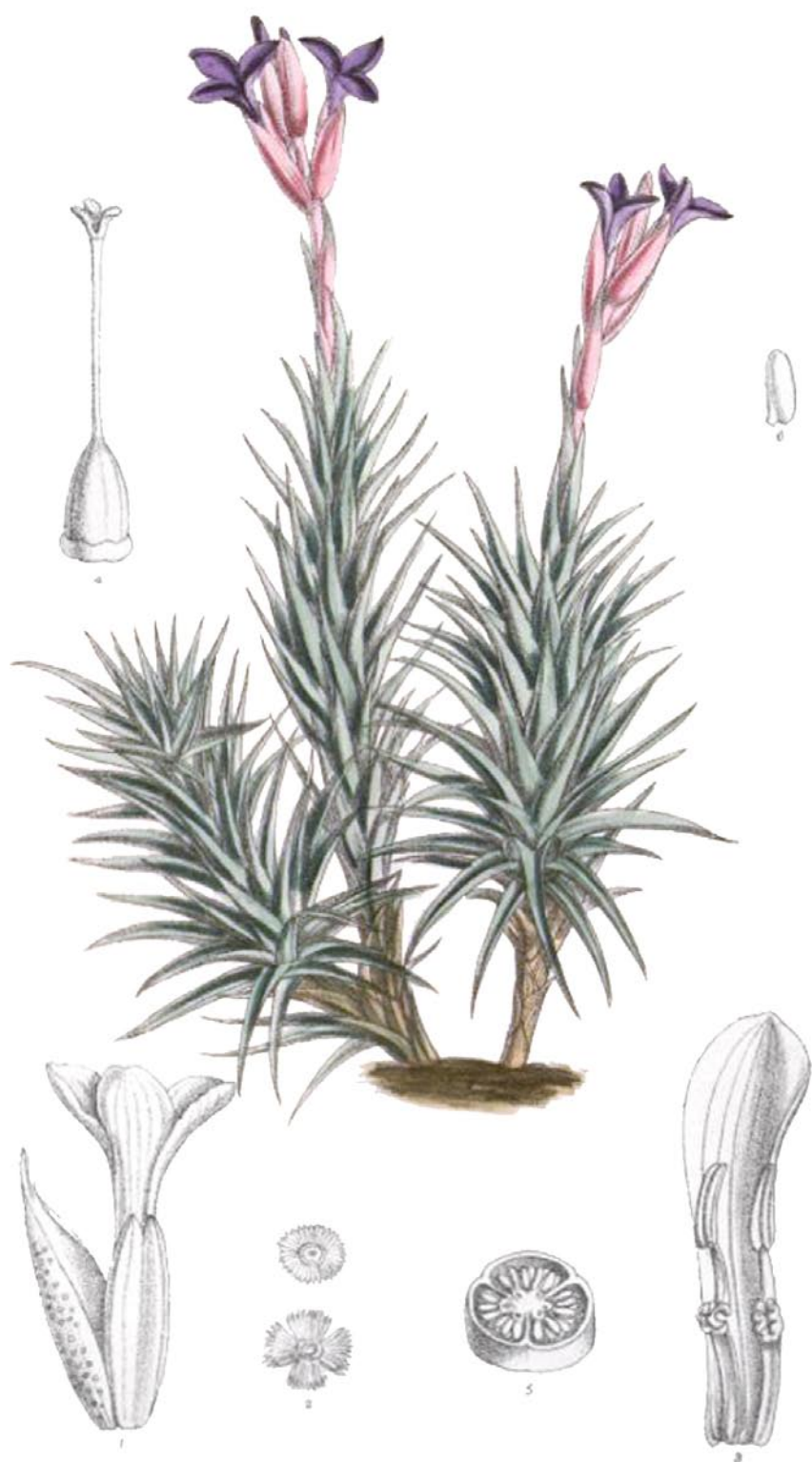
The present species represents the section *Conostachys* of the large genus *Tillandsia*, which is characterized by its scaled petals and multifarious spikes, and is the first species of that section which has been figured in the BOTANICAL MAGAZINE. It was discovered about the year 1870 in the neighbourhood of Cordova, in Mexico, by the Belgian gentleman after whom it is named, M. Omer de Malzine, and was first flowered in cultivation by M. Jacob Makoy, of Liege, in 1872. The excellent figure in the Belgique Horticole above cited represents a variety with red bracts. In our plant, which flowered at Kew in April, 1879, the bracts are yellow.

DESCR. Acaulescent. *Leaves* fifteen or twenty in a dense rosette, lorate, about a foot long, three inches broad at the dilated base, an inch and a half or two inches at the middle, falcate, chartaceous in texture, not at all lepidote, the apex deltoid cuspidate, the face bright green, the back red-brown with fine vertical lines. *Peduncle* simple, rather shorter than the leaves, stiffly erect, with several falcate

MAY 1ST, 1880.

lanceolate reduced leaves. *Flowers* twelve to twenty, arranged in a moderately dense simple multifarious spike; bracts ovate-navicular, acute, glabrous, above an inch long, yellow or red. *Calyx* on a very short stout pedicel, protruded a little beyond the bract, green, glabrous; sepals oblong, obtuse. *Petals* white, lingulate, twice as long as the calyx, furnished with a pair of cuneate white fimbriated scales at the base. *Stamens* a little shorter than the petals; filaments filiform; anthers small, yellow, linear-oblong, versatile. *Ovary* ampullæform; style reaching to the top of the anthers; stigma of three crisped ovate lobes. *Capsule* twice as long as the calyx.—*J. G. Baker.*

Fig. 1, a scale from the base of the petal; 2, a couple of stamens; 3, pistil; 4, horizontal section of ovary ; 5, stigma:—*all more or less magnified.*



M. S. del J. N. P. High 20th

L. R. Rasmussen, A. C. O'Neil, and J. L. ...

Vincent Brooks Day & Son Inc.

TAB. 7320.

TILLANDSIA MICROXIPHION.

Native of Monte Video.

Nat. Ord. BROMELIACEÆ.—Tribe TILLANDSIEÆ.

Genus TILLANDSIA, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. iii. p. 669.)

TILLANDSIA (*Anoplophytum*) *microxiphion*; caulibus brevibus strictis erectis dense foliosis, foliis linearibus strictis pallide viridibus lepidotis facie canaliculatis dorso rotundatis apice subpungentibus infimis patulis reliquis ascendentibus, spicis densis paucifloris, bracteis ovatis pallide rubris calyce brevioribus dorso valde convexis, sepalis oblongis pallidis cartilagineis, petalis violaceis lingulatis calyce sesqui-longioribus apice patulis, staminibus petalis multo brevioribus, pistillo staminibus æquilongo, ovario ovoideo, stylo elongato apice stigmatoso tricuspidato.

This is a new species of the large genus *Tillandsia*, belonging to the small subgenus *Anoplophytum*, which is characterized by its dwarf habit, long style, and few multifarious flowers. Of this subgenus *T. stricta*, Soland (Bot. Mag. tab. 1529) *T. dianthoidea*, Rossi, and *T. pulchella*, Hook. (Bot. Mag., Tab. 5229), have long been known in cultivation. The present plant is nearest *T. stricta*, from which it differs mainly by its shorter leaves. It was first found about 1890, during a short visit which he paid to Monte Video, by Monsieur Edouard André, who is so well known as an authority on *Bromeliaceæ*, and who has discovered and introduced into cultivation so many new species. He sent a plant of it to the Royal Gardens, Kew, at the end of 1890, and it flowered for the first time in a stove in February, 1893.

DESCR. *Stems* short, tufted, erect, densely covered with leaves. *Leaves* linear, rigid, pale green, lepidote, about an inch long, deeply channelled down the face, rounded on the back, almost pungent at the apex, densely crowded, the lower spreading, the upper ascending. *Inflorescence* a dense terminal few-flowered spike; bracts ovate, pink, glabrous, longer than the calyx. *Sepals* oblong, whitish,

OCTOBER 1ST, 1893.

cartilaginous. *Petals* lingulate, violet-purple, half as long again as the calyx, spreading at the apex. *Stamens* much shorter than the petals. *Pistil* about as long as the stamens; ovary ovoid, style elongated, subulate, tricuspidate at the stigmatose apex.—*J. G. B.*

Fig. 1, Bract and flower; 2, lepidote scales; 3, petal with stamens; 4, ovary ; 5, section of ditto; 6, ovule:—*All enlarged.*



(2841)

TILLANDSIA PSITTACINA. GAUDY-FLOWERED
TILLANDSIA.

Class and Order.

HEXANDRIA MONOGYNIA.

(Nat. Ord.—BROMELIACEÆ)

Generie Character.

Cal. 3-partitus, inferus. *Cor.* 3-partita. *Caps.* 3-valvis. *Semina* papposa. *Spr.*

Specific Character.

TILLANDSIA* *psittacina*; foliis lineari-ligulatis integerrimis acutis nudis basi inflatis, spica simplici, rachi flexuosa colorata, floribus remotis, bractea longitudine floris colorata.

DESCR. An inhabitant of the trunks of trees. *Leaves* radical, front six to eight inches long, linear-ligulate, much inflated) with the sides involute at the base, towards the extremity plane, recurved. acute; the margin every where entire, the colour a yellow-green, the surface naked, free from scale or any other superficial covering; of a thin texture, more or less waved. From the centre of these leaves arises a *scape* or flower-stalk, a foot or more high, terete at the base, and bracteated; the rachis zigzag. of a fine red, grooved on one side. *Flowers* remote, distichous large. *Bractea* equal in length with the flower, or nearly so, broadly ovate, circumvolute upon the flower, its lower part of a bright-red, the rest deep yellow. *Calyx* of three circumvolute

After TIL-LANDS. a professor of medicine at Abo, who wrote, in 1683, a history of the plants of the neighbourhood of that city.

circumvolute leaflets, scariose: *Corolla* of three petals, longer than the calyx and bracteæ, linear, revolute and green at the point. At the base of each petal are two oblong, membranaceous, erect scales, within which the stamens are inserted. *Filaments* as long as the corolla. *Anthers* versatile, linear, yellow-brown. *Pistil*: *Germen* inferior ovate, tapering into a filiform *style*, which is as long as the stamens. *Stigma* trifid, the segments very blunt, villous.

Recently introduced by WILLIAM HARRISON, Esq. of Rio de Janeiro, to the rich collection of his brother RICHARD HARRISON, Esq. of Aighburgh, near Liverpool; who obligingly sent me a specimen of the flowers and leaves, together with a sketch of the whole plant, which is here given.

It may certainly rank among the most beautiful of this curious genus; the colour of the radius, bracteæ, and flowers being singularly brilliant. It is allied to the *BROMELIA aloifolia* of my "Exotic Flora"; but here there are scales at the base of the corolla, as in *PITCAIRNIA*.

Fig. I. Petal showing the scales and the insertion of the stamens. 2. Pistil.—Searcely *magnified*.



TILLANDSIA PPULCHELLA.

Delicate Tillandsia.

Nat. Ord. BROMELIACEÆ.—HEXANDRIA MONOGYNIA.

Gen. Char. Perigonii liberi 6-partiti laciniae exteriores calycinæ, æquales, basi cohærentes, spiraliter convolutæ, duo altius inter se connatæ, tertia minor, interiores petaloides, inferne in tubulum convolutæ v. connatæ, superne patentēs, basi intus nudæ v. rarius squamosæ. Stamina 6, hypogyna; filamenta linearia, alterna, sæpius perigonii laciniis interioribus adhærentia; antheræ incumbentes, basi sagittato-emarginatæ. Ovarium liberum, triloculare. Ovula loculorum angulo centrali prope basin plura, biseriata, adscendentia, anatropa. Stylus filiformis; stigma trifidum, lobis abbreviatis v. filiformibus aut apice dilatatis, rectis v. contortis. Capsula cartilaginea, linearia v. ovata, trilocularis, loculicido-trivalvis; valvis endocarpio mox soluto duplicatis, explanatis v. tortis. Semina plurima, e basi dissepimentorum erecta, lineari-clavata, stipitata, stipite pilis papposis cincto, testa dura; chalaza terminali mamillari. Embryo in basi albuminis farinosi rectus, extremitate radiculari infera.—Herbæ in America tropica et extratropica calidiore indigenæ, ut plurimum pseudoparasiticæ, lepidotes; caulibus foliolis simplicibus v. rarius ramosis: floribus spicatis v. paniculatis, rarius solitariis, bracteatis. Endl.

TILLANDSIA *pulchella*; acaulis cæspitosa, foliis subulatis canaliculatis incano-lepidotis, scapo solitario folia æquante floribusque squamis imbricatis oblongis convolutis intense roseis tectis, calycis laciniis oblongis erectis albis basi unitis, corolla albæ petalis spathulatis stamina superantibus, filamentis medium versus insigniter crispato-flexuosis.

TILLANDSIA *pulchella*. Hook. *Exot. Flora*, t. 134. *Ræm. et Schult. Syst. Veget.* v. 7. p. 1207.

POURRETIA *Surinamensis*. Hort. *Amstelod.*

We received living specimens of this pretty epiphyte lately from the Amsterdam Botanic Garden, under the name of *Pourretia Surinamensis*, but it is unquestionably our *Tillandsia pulchella* of the 'Exotic Flora,' and which was sixteen years ago received from Trinidad, and flowered in the Botanic Gardens at Glasgow. It appears to be a common epiphyte in the West Indies, and probably in tropical South America, where many species of the genus abound, clothing the trunks of trees in the same way as the epiphytal orchideous plants. We have received many kinds at Kew, and, either attached to pieces of wood or

merely suspended to the rafters in a warm and moist stove, they exhibit signs of life often for two or three years, but seldom longer, and they blossom very rarely. Many of them, we know, are extremely ornamental; and it is hoped that our stoves may be yet permanently adorned with their flowering specimens.

DESCR. Tufted, stemless. *Leaves* four to six inches long, quite subulate, hoary with a minute scurfy pubescence, channelled, especially towards the base. *Scape*, including the spike of flowers, about as long as the leaves, almost entirely concealed with the beautiful, delicate, red, imbricated and sheathing *bracteas*. *Calyx* greenish-white. *Petals* quite white. *Filaments* of the stamens singularly undulato-crispate above the base.

Fig. 1. Flower, with its bractea. 2. Flower apart from the bractea. 3. Petal and two stamens. 4. Pistil:—*magnified*.



Pub. by S. Curtis. Watercolor. Magnified.

BROMELIA PYRAMIDALIS. PYRAMIDAL-
FLOWERED BROMELIA.

Class and Order.

HEXANDRIA MONOGYNIA.

Generic Character.

Cal. 3-fidus, superus. *Petala* 3. *Squama* nectarifera ad basin petali. *Pericarpium* 3-loculare.

Specific Character and Synonyms.

BROMELIA *pyramidalis*; foliis lanceolatis acuminatis spinosociliatis, scapo infra flores nudos bractato bracteis lanceolato-ovatis integerrimis coloratis.

BROMELIA *pyramidata* aculeis nigris. *Plum. Gen.* 46. *Ic.* 62.?

BROMELIA *nudicaulis* *Sp. Pl.* 409.? *Willd.* 2. *p.* 9.?

DESCR. *Leaves* all radical, lanceolate with a lengthened point, edged with small brown spines, involute, and embracing one another at the base. A simple scape rises from the bottom of the leaves, clothed below the flowers with large, concave, ovate lanceolae, spathe-like, entire, bractes, a fine rose-colour, which turns brown with age. Above the bractes the flowers grow in a thyrse-like spike, naked (i. e. without any bractes intermixed). *Germen* inferior, nearly cylindrical, trilocular, with many ovula in each cell, affixed in two rows to a central receptacle. *Style* the length of the stamens: stigma tripartite; the laciniae bright violet, twisted together, so as to resemble a screw-like capitate stigma. *Calyx* tripartite; segments linear, connivent, erect. Both it and the germen are covered with a white, mealy powder. *Corolla* three-petaled: *petals* erect, with linear claws longer than the calyx: *limb* short, ovate, acute, patent, the edges soon rolling inwards. The colour a fine scarlet, tinged on the inside with violet, more intense at the tips. *Filaments* six, inserted into the base of the calyx. *Anthems* yellow, linear, incumbent.

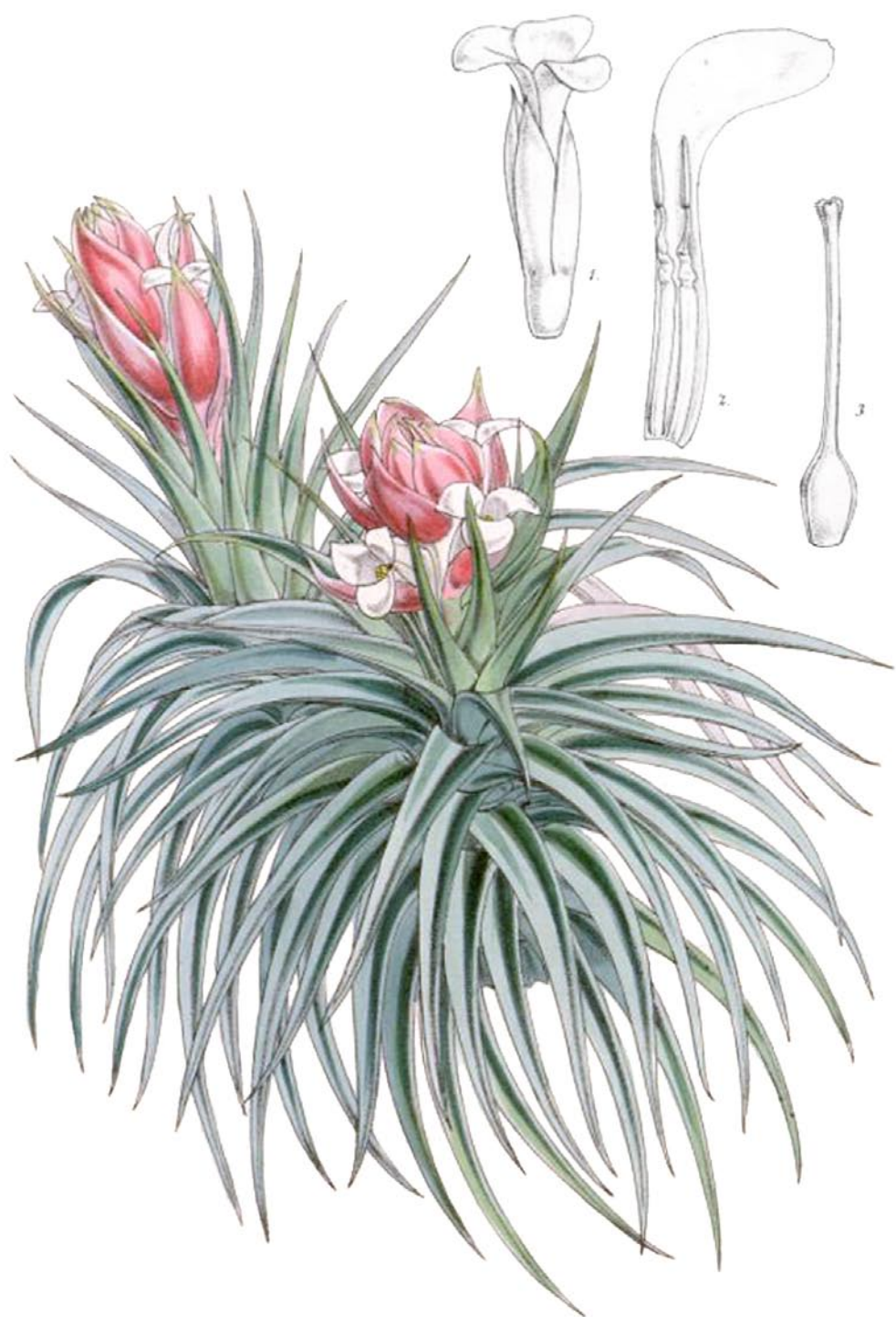
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This plant has great resemblance to the figure of PLUMIER, above quoted, from which LINNÆUS probably adopted his *nudicaulis*; yet we dare not consider them as certainly the same; and, at all events, the name of *nudicaulis* is so very inapplicable to a plant that has no stalk, but a scape only, and that too clothed at the inferior part with large bractes, that the original one of PLUMIER seems every way preferable. In the Bankian Museum, there is a drawing of a nearly-related species, to which LINNÆUS's name of *nudicaulis* is applied. The flowers of this are much smaller and white, and the leaves are truncated with a small acumen.

In our specimen, the scape did not rise so as to elevate the flowers above the bractes, perhaps from a deficiency of heat: in one which flowered earlier, the spike was more lax, and the flowers, after deflorescence, became patent; calyx, corolla, and stamens, persistent.

This plant, like some others, both in this genus and in TILLANDSIA, holds a quantity of water in the bottom of the leaves; which, it has been asserted, they are never found without, even in the hottest weather, in a tropical country.

Communicated by the lady of the Right Hon. GEORGE ROSE, from Cuffnells, where it flowered two successive years, in February and March. The mother plant was received from Rio de Janeiro some years ago, and threw off several offsets before it flowered, which have been treated the same as the pine apple, till of a good size for flowering, when the pot was taken out of the bark and placed upon a shelf in the stove.



TILLANDSIA RECURVIFOLIA.

Recurved-leaved Tillandsia.

Nat. Ord. BROMELIACEÆ.—HEXANDRIA MONOGYNIA.

Gen. Char. (*Vide Supra*, TAB. 5229.)

TILLANDSIA *recurvifolia*; foliis glaucescenti-lepidotis, e lata basi lanceolato-subulatis canaliculatis integerrimis, radicalibus insigniter recurvis, floralibus erecto-subpatentibus minus glaucis spicam æquantibus, scapo folioso brevissimo, spica late ovata subcapitata laxè bracteata, bracteis elliptico-oblongis acutissimis roseis, calycis albi laciniis lanceolatis mucronato-acutis basi in tubum unitis, corolla albæ petalis spathulatis stamina superantibus filamentis supra medium crispato-flexuosis.

This is, as far as I can find, a new species of *Tillandsia*, evidently of the same group as, and nearly allied to, the pretty *T. pulchella*, figured in a late number of this Magazine, Tab. 5229, differing in the much broader, very glaucous, all very much recurved leaves, in the larger, almost sessile, and nearly ovate spikes of flowers, with much broader and pink-coloured, not red, bracts. We owe the possession of it to our friend, W. D. Christie, Esq., British Minister at Rio, who introduced it to Kew Gardens from Panama. I have already remarked, that easily as the *Tillandsia* are to import living, and tenacious as they are of life, no plants are more difficult to preserve in cultivation for any length of time.

DESCR. Stemless. *Radical leaves* copious, densely imbricating at their broad base, and thence becoming lanceolato-subulate, three to four inches long, channelled, thickly clothed with minute scales, which give them a hoary and very glaucescent appearance; the interior and superior leaves, which immediately surround the inflorescence, are more erect, less glaucous, but broader, in proportion to the length, at their base. *Scape* very short, leafy, terminated by a broad ovate *spike* or *capitulum* of flowers, laxly imbricated with large broad-oblong, very acute,

MAY 1ST, 1861.

rose-coloured *scales*, sometimes tipped with yellowish-green. The white flowers force back the rose-coloured bracts, and protrude a very little beyond them. *Calyx* of three erect imbricating almost mucronate sepals, nearly as long the corolla, united into a tube at the base. *Petals* pure white, with a spatulate *limb* and broad white *claws*. *Stamens* as long as the claws. *Filaments* linear-subulate, crisped and tortuose above the middle. *Anthers* small, linear. *Ovary* ovate, tapering into a thickened *style*, and terminated by three cuneate nearly erect *stigmas*.

Fig. 1. Entire flower. 2. Petal and two stamens. 3. Pistil:-all magnified.

3275.



W. J. H. J. D.

Plak by S. Charles Woodward Esq. Oct. 1 1903

— J. W. W.

(3275)

TILLANDSIA SETACEA. SETACEOUS-LEAVED
TILLANDSIA.

Class and Order.

HEXANDRIA MONOGYNIA.

(Nat. Ord.—BROMELIACEÆ)

Generie Character.

Calyx 3-partitus, inferus. *Petala* 3, convoluta distincta basi nuda. *Stylus* filiformis. *Stigmata* recta (*Lindl.*) vel convoluta. *Fructus* capsularis. *Semina* papposa.

Specific Character and Synonyms.

TILLANDSIA* *setacea*; foliis e basi dilatata ventricosa anguste subulatis curvatis rigidis extus farinoso-squamulosis, scapo folioso, spica solitaria magna simplici, bracteis cymbiformibus distiche imbricatis unifloris, stigmatibus convolutis.

TILLANDSIA *setacea*. *Swartz, Fl. Ind. Occ. v. 1. p. 593.*
Schultes, Syst. Veget. v. 7. p. 1207.

DESCR. A parasite on the trunks of trees. *Stem* scarcely any. *Leaves* numerous, imbricated, about a foot long, curved to one side, from a broad, sheathing, and very concave base gradually becoming subulate, grooved, rigid, of dingy green, whitish on the outside owing to the numerous, minute scales, which present a mealy surface. At the flowering season, the *stem* elongates itself into a leafy scape, scarcely a foot in length, and the leaves become gradually shorter and broader, till at length, from being imbricated
on

* In honor of ELIAS TILLANDS, a Swedish Botanist, and Professor of medicine the University of Abo.

all sides, they become the large, cymbiform, imbricated, distichous, bluntly mucronated *scales* or *bracteas* of an oblong solitary, simple *spike*:—these scales are coriaceous, free from the little squamulæ which abound so much upon the leaves; the margin of a beautiful red. From each of these scales arises a single flower in succession, one only being in perfection at a time, and continuing for day, and of this the upper half only is protruded beyond the scale. Entire *flowers* two inches long. *Calyx* inferior, three-partite, pale yellow; the segments carinated, imbricated: *Petals* three, twice the length of the calyx, distinct, convolute, white, purplish upward. *Stamens* six, arising from the receptacle, filiformi-subulate, white or purplish, as long as the corolla: *Anthers* oblong, brownish-green: *Pollen* yellow. *Germen* superior, oblong, and triangular: *Style* filiform, white: *Stigmas* three, closely convolute, yellow.

Among a valuable collection of Jamaica plants received by the Glasgow Botanic Garden from Mr. SMITH, was the present truly fine species of TILLANDSIA, which blossomed in the stove in the month of May, 1833. The leaves are of a pale or whitish hue; but the scales or bracteas of the spike are richly variegated with red and yellow, and each bears in succession, a single and delicate flower, which continues but for one day.

Fig. 1. Bractea, and 2. Flower; *nat. size*. 3. Pistil. 4. Stamen; *slightly magnified*.



M.S. del. J.N. Fitch lith.

Vincent Brooks Day & Son Imp.

L. Reiche & Co. Botanical

TAB. 6757.

TILLANDSIA STREPTOPHYLLA.

Native of Mexico and Honduras.

Nat. Ord. BROMELIACEÆ.—Tribe TILLANDSIEÆ.

Genus TILLANDSIA, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. iii. p. 669.)

TILLANDSIA (*Platystachys*) *streptophylla*; foliis dense rosulatis lineari-lanceolatis acuminatis insigniter spiraliter tortis semipedalibus et ultra utrinque dense persistenter albo-lepidotis basibus oblongis erectis ventricosus, pedunculo brevi foliis bracteiformibus rubellis imbricatis apicibus squarrosis, spicis pluribus densis distichis, bracteis oblongo-lanceolatis navicularibus lepidotis valde imbricatis, calyce incluso glabro, petalis lilacinis angustis calyce triplo longioribus, genitalibus exsertis.

T. *streptophylla*, *Schweid. in Hort. Belg.* 1836, vol. iii. p. 252, *cum icone*; *Schlecht. in Linnæa*, vol. xviii. p. 427; *E. Morren in Belg. Hort.* 1878, p. 296, t. 18, 19; *Hemsley in Biol. Cent. Amer. Bot.* vol. iii. p. 322.

T. *circinnata*, *Schlecht. in Linnæa*, vol. xviii. p. 430.

T. *tortilis*, *A. Brong. MSS.*

VRIESEA *streptophylla*, *E. Morren Cat. Bromel.* 1873, p. 17.

This Bromeliad, from its remarkable habit, is quite a botanical curiosity. Like its neighbours, it grows on old trunks of trees. The bases of the leaves form a large pitcher round the base of the stem, and from this rise their long tapering leathery blades, which are rolled up spirally, and twisted in all directions in the most irregular fashion. The spikes and individual flowers do not show any striking difference from some of the best-known West Indian representatives of this large genus, such as *T. polystachya* and *T. fasciculata*. There is a specimen at the British Museum, gathered in the Mosquito territory as long ago as 1744 by Captain Miller, but it was not described and named till a century later. It has long been cultivated sparingly as a curiosity in the Belgian, English, and French conservatories, and it has been found wild in Mexico by Schiede, Bourgeau, and Hahn.

Our drawing was made from a plant that flowered at Kew last April.

MAY 1ST, 1884.

DESCR. Whole plant a foot or a foot and a half long. *Leaves* in a dense basal rosette, their rigid ventricose erect dilated base two or three inches long and broad; blade six or nine inches long, an inch broad at the base, tapering gradually to a long point, very much twisted spirally from low down, firm in texture, densely lepidote on both surfaces. *Peduncle* short, quite hidden by its numerous amplexicaul red-tinted lepidote imbricated bract-like leaves, with short free linear recurving tips. *Spikes* four to eight in a short panicle, distichous, three or four inches long, under an inch broad; bracts oblong-lanceolate, much imbricated, densely lepidote. *Calyx* half an inch long, hidden by the amplexicaul bract, glabrous, cut down nearly to the base. *Corolla* cylindrical, bright lilac, an inch and a half long. *Stamens* exserted. *Style-branches* overtopping the stamens, short, twisted spirally, flattened towards the tip. *Capsule* an inch and a half long.—*J. G. Baker.*

Fig. 1, Lepidote scale from a leaf:—*much enlarged*; 2, a flower complete except the calyx:—*life size*; 3, front view of an anther; 4, back view of an anther; 5, pistil:—*all more or less enlarged.*

17529



Syn. Edwardsii

Det. by J. D. Hooker, Wadsworth, Feb. 1853

S. longifolia

TILLANDSIA STRICTA. FROSTED STIFF-
LEAVED TILLANDSIA.

Class and Order.

HEXANDRIA MONOGYNIA.

Generic Character.

Cal. 3-partitus. *Cor.* longior, 3-partita (*in* RENEALMIA *Plumeri*), aut tubulosa 3-fida (*in* CARAGUATA *Plumieri*). *Stamina* imo flori inferta. (*Germ.* superum.) *Capf.* obtuse trigona, 3-locularis (unilocularis ex *linn.*), polysperma, *feminibus* papposis. *Folia plerumque radicalia, flores in scapo aut caule spicati aut paniculati. Planta herbacea plurimæ parasitica, aliæ AGAVEM, aliæ ALOEM, aliæ BROMELIAM habitu mentientes. Character in vivis examinandus et observanda germinis evolutio. Capf. quarundam subunilocularis? An genus dividendum?* Jussieu Gen. Plant. 50. TILLANDSIA, *Linn.* RENEALMIA, *Plum.* CARAGUATA, *Pl.*

Specific Character and Synonyms.

TILLANDSIA *stricta*; (*monostachya*;) foliis radicalibus, numerosis, fasciculatis, basi imbricato-complexis, inde multifariam divergentibus, ligulato-fubulatis, canaliculatis, subcostato-carinatis, integerrimis, pellicula pruinosa canescentibus, exterioribus recurvis; caule parum altiori, stricto, simplici, teretiusculo, foliolis vaginato; spica sparsa multiflora, ovato-oblonga, imbricato-laxata; bracteis solitaris, unifloris, affurgentibus, ampliusculis, semipellucidis, membranaceis, aridis, ovato-ellipticis, cum mucrone, ventricoso-concavis, infimis nunc cuspe longa phyllodi; floribus sessilibus, erectiusculis, subinclusis; calyce triphyllodi-partito, tubulose connivente, glabro, persistente, segmentis oblongo-attenuatis, cavulis; corolla tertia parte longiori, tripetalodi-partita, in tubum supra patulum imbricato-convergente; lacinis æqualibus, subspathulato-ligulatis, obtusis, intra calycem concavioribus decoloribus; staminibus erecti, inclusis; filamentis phylraceo-linearibus, subcanaliculatis, supra attenuatis, conniventibus, antheris erectis,

erectis, lineari-fagittatis; germine oblongo acuminato, rotundate trigono, trifulco; stylo aliquoties longiori, incluso, filiformi-triquetro, superne turto; stigmatibus tribus minutis, puberulis, replicatis; capsula columnari, obtuse trigona, acutula, bracteam parum transeunte. G.

TILLANDSIA *stricta*. Soland. Mss. in .Sched. Banks. Fig. pict. in Icon. pl. Brasil. in Cod. Banks.

DESC. *Leaves* springing from a short fleshy *rosette*, much in the manner of those of the common Pine-Apple, about six inches long, nearly half an inch broad at their base, whence they taper their whole length, coated with a hoar-like pubescence, thickest towards the base of the leaf; *stem* nearly of the thickness of a common pen, about seven inches high; *bractes* stone-white, subpellucid, reddening towards their circumference; *flowers* narrow-cylindrical, about three-fourths of an inch long, scentless; *calyx* thickish, pale reddish brown; *corolla* above that part of a deep violet-blue, finally changing to a deep red; *stamens* almost equal to this in length; *style* straight, white, with stigmas just overtopping the yellow *anthers*; *germen* pale green, four times shorter than the style, which is continuous with its apex, quite free from the flower; *capsule* dark brown, about the thickness of a crow-quill, pointed. A parasitic plant; found by the late Dr. SOLANDER in the Brazils, growing on trees near Rio Janeiro. There is nothing in the very little which LINNÆUS has left us concerning his *monostachya*, that does not tally with this species, except the synonymy. Requires to be kept in the stove; but, we have been told, will live and blossom when suspended by a thread in a warm room. Our drawing was made from a plant that flowered at Messrs. WHITLEY and BRAME's Nursery, in the King's Road, Fulham, in November last. Not recorded in any work known to us. First introduced into the European gardens by Lady NEALE, in whose collection at Walhampton it has been cultivated for some years. G.



W.H. Fitch del et. Lach.

Vernier, Brooklyn Day & Son Imp

TAB. 6309.

TILLANDSIA USNEOIDES.

Native of Tropical America.

Nat. Ord. BROMELIACEÆ.

Genus TILLANDSIA, *Linn. (Endl. Gen. Plant. p. 188).*

TILLANDSIA (*Strepsia*) *usneoides*: squamulis patulis argenteis cana, e basi ramosissima, ramis filiformibus inordinate flexuosis intricatis pendulis, foliis bifariis patentibus v. recurvis subremotis filiformibus teretibus acuminatis canaliculatis, vaginis teretibus, floribus parvis terminalibus viridibus subsessilibus, sepalis lanceolatis 3-nerviis bracteis convolutis 3-nerviis acuminatis subduplo longioribus, petalorum unguibus 5-nerviis sepalis sequantibus lamina oblonga recurva apice rotundata, staminibus inclusis antheris linearibus, filamentis filiformibus glabris, ovario oblongo, stylo breviusculo, stigmate 3-lobo.

T. *usneoides*, *Linn.*; *Lamk. Encycl. t. 224, f. 2. Chapman Flor. S. U. States, 472. Griseb. Fl. Brit. W. Ind. p. 598. Sloane Hist. Jam. t. 122, f. 2, 3.*

This, the Spanish Moss, Old Man's Beard, and Long Moss, of the Southern United States and the West Indies, is well described in Sloane's History of Jamaica as a "mossie plant . . . with stalks the bigness of a thread, consisting of a thin skin, whitish, as if covered with a hoar-frost, having within that a long tough black hair, like a horse-hair . . . very often a yard long, hanging down on both sides from the branches of the trees they adhere to, being curled, or twining and winding within another, and making a show of an old man's beard (whence the name), or as if they were made to climb, which I never saw they did." Further on he says, "it is used to pack up anything which otherwise may easily be broken, as cotton is sometimes made use of with us;" and again, "the inward black hairs of this moss's stalk are made use of by the birds called Watchpickets for making their curiously contrived nests hanging on the twigs of trees."

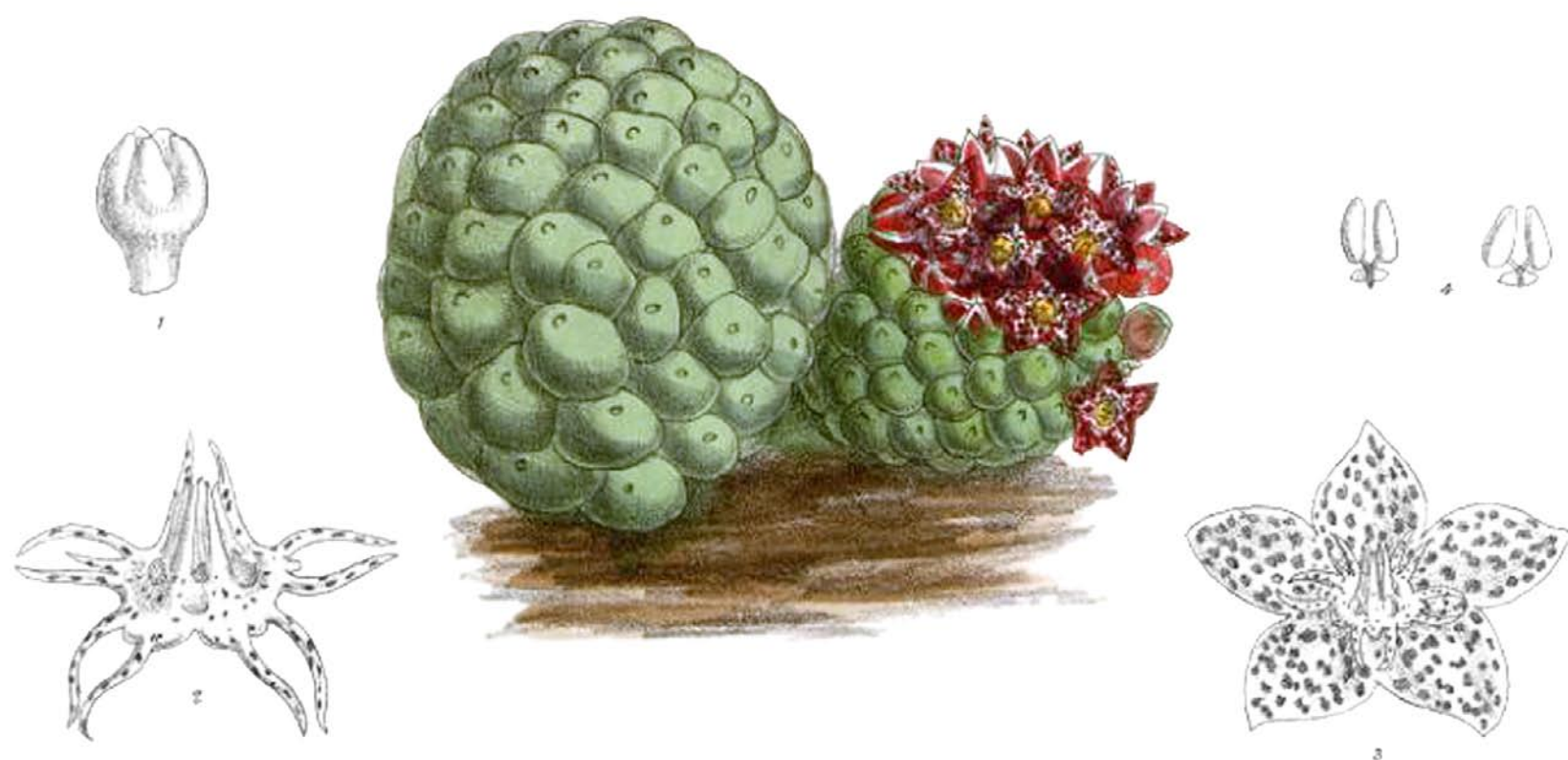
To this description I have little to add, except that the Spanish Moss is a very widely distributed plant in the hotter parts of America, from Carolina to South Brazil, and on the

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Andes, hanging in bunches sometimes many yards long from the branches of trees. It has frequently been sent to England as packing for Orchids, but rarely alive, and it is not till quite lately that it has been successfully cultivated at Kew, from plants imported (as packing from Jamaica). The specimen from which our flowers are figured was contributed to the Royal Gardens by Mr. J. C. Hopwood, of Stoke Newington. It now thrives in a damp stove, growing on pieces of tree-fern, and other substances, and flowering in spring. The scurfy scales that clothe the plant are beautiful microscopic objects. Each presents a nucleus of four central cells, around which other cells are concentrically disposed, and a delicate transparent wing surrounding the nucleus, and formed of a single series of slender extremely delicate radiating cells. The hairs of the funicle of the seed are formed of superimposed cells, of which each fits into a notch of the one below it.

DESCR. Forming lax tufts, one to many feet long, pendulous from the branches of trees, and clothed everywhere with a spreading silvery scurf. *Stems* excessively branched from the base, uniform in thickness throughout, filiform, tough, flexuose; branches interwoven. *Leaves* alternate, bifarious, uniform along the whole of the branches, spreading, one to three inches long, filiform, acute, grooved on the upper side; sheaths half to two inches long, cylindric. *Flowers* about one-third of an inch long, on a very short stout peduncle, terminal, solitary, green. *Bracts* convolute, acuminate, 3-nerved, about half the length of the lanceolate, acuminate, green, almost glabrous, 3-nerved sepals, which are tinged with red. *Petals* with a linear 5-nerved claw, equalling the sepals; limb linear-spathulate, recurved, obtuse. *Stamens* included; filaments filiform; anthers linear, erect. *Ovary* oblong; style short, stigmas capitate. *Capsule* half to one inch long, straight, linear, trigonous, beaked; valves of a membranous 1-nerved outer layer, and a horny brown separating inner one. *Seeds* very slender, fusiform; testa with a long straight pencil of cellular hairs.—*J. D. H.*

Fig. 1, Branch, leaves, and flowers; 2, petals, stamen, and pistil:—*enlarged*.



M.S. del. J.N. Fischlith.

L. Reeve & C^o Landen

Vincent Brooks, Day & Son L^{td} Imp

TAB. 8579.

TRICHOCAULON PICTUM.

Little Namaqualand.

ASCLEPIADACEAE. Tribe STAPELIEAE.

TRICHOCAULON, *N. E. Br. in Journ. Linn Soc.* vol. xvii p. 164.

Trichocaulon pictum, *N. B. Br. in Kew Buetin*, 1909, p. 807; affinis *T. cactiformi*, *N. E. Br.*, sed corona in tubum distinctum haud inclusa et coronae interioris lobis supra antheras productis differt.

Herba; caulis subglobosus vel cylindrico-oblongus, obtusissimus, simpler vel basi tantum parce ramosus, 4–7 cm. longus, 4–5 cm. crassus, irregulariter tessellato-tuberculatus, glaber, tuberculis 6–10 mm. diametro obtusissimis primum minute apiculatis. *Flores* fasciculati, erecti, fasciculis 2–4-floris. *Pedicelli* 2 mm. longi, glabri. *Sepala* 1–1·5 mm. longa, late ovata, acuta, glabra. *Corolla* 9 mm. diametro, extra levis, intra minute rugulosa, glabra, albida punctis et lineis brevibus numerosis purpureis notata; tubus late patelliformis vel subplanus; lobi patentissimi, 2·5 mm. longi, 8 mm. lati, late deltoideo-ovati, acuti. *Corona exterior* 5-loba; lobi 1·5 mm. longi, trifidi vel bifidi cum denticulo intermedio interjecti, fere ad sinum corollae attigentes, pallide lutescentes, purpureo-maculati. *Coronae interioris* lobi 1·5 mm. longi, lineares, acuti, antheras excedentes apicibus conniventi-erectis, lutescentes, purpreo-marginati.—*N. E. BROWN*.

The remarkable plant which is here depicted is one of a small group of species of *Trichocaulon* which, as regards their stems, resemble one another so closely that when out of flower they might pardonably be mistaken for forms of the same species. Yet they are so distinct as regards the colour and the structure of their flowers that they cannot with propriety be treated as conspecific. The extent of the difference between one such form and another may be best realised if the figure now given of *T. pictum* be compared with that of *T. cactiforme*, *N. E. Br.*, figured, as *Stapelia cactiformis*, at t. 4127 of this magazine. *T. pictum* was originally discovered in Little Namaqualand by Dr. R. Marloth It was met with again by Professor H. H. W. Pearson in the same country, during the course of the Percy Sladen expedition, on the north-western slopes of quartzite hills south-west of Chubiesis, and the plant from which our drawing has been made is one of those included in a magnificent collection of
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succulent plants received from Professor Pearson as part of the fruits of his journey. It, has thriven well in the Tropical Succulent House at Kew and flowered here for the first time in June, 1912.

DESCRIPTION.—*Herb*; stem subglobose or cylindric-oblong, very blunt, simple or sparingly branched at the very base, $1\frac{1}{2}$ –3 in. long, $1\frac{1}{2}$ –2 in. thick, irregularly tessellately tubercled, glabrous; tubercles $\frac{1}{4}$ – $\frac{1}{3}$ in. wide, very blunt, at first minutely apiculate. *Flowers* fascicled, erect; fascicles 2–4-flowered. *Pedicels* $\frac{1}{12}$ in. long, glabrous. *Sepals* small, wide-ovate, acute, glabrous. *Corolla* $\frac{1}{3}$ in. across, smooth externally, minutely rugulose within, glabrous, whitish but marked with many close-set purple dots and short streaks; tube wide-patelliform or almost flat; lobes spreading, $\frac{1}{10}$ in. long, over $\frac{1}{10}$ in. wide, broadly deltoid-ovate, acute. *Outer corona* 5-lobed; lobes short, trifid or bifid with a short intermediate tooth, almost reaching the sinuses between the corolla lobes, pale yellowish blotched with purple. *Inner corona* with short, linear, acute lobes rather larger than the anthers, their tips erect-connivent, yellowish with purple margins.

Fig. 1, calyx from which the corolla has fallen; 2, a flower; 3, corona; 4, pollen-masses:—*all enlarged*.



M. S. del. J. N. Pich. lit.

Vincent. Brooks Dry & Son Imp.

L. Reeve & C^o London

TAB. 6759.

TRICHOCAULON PILIFERUM.

Native of South Africa.

Nat. Ord. ASCLEPIADACEÆ.—Tribe STAPELIÆ.

Genus TRICHOCAULON, (*N. E. Brown in Journ. Linn Soc.* vol. xvii p. 164.)

TRICHOCAULON *piliferum*; caule brevissimo, ramis cylindraceis crassissimis erectis obtusis multi-sulcatis inter sulcos mamillatis, mamillis lævibus seta rigida terminatis, floribus sparsis sessilibus, sepalis ovatis acuminatis, corolla late infundibulari-campanulata intus purpurea breviter 5-loba lobis late triangularibus acuminatis intus papilloso, coronæ lobis 2-fidis.

T. *piliferum*, *N. E. Brown, l. c. t. xi. f. 1.*

STAPELIA *pilifera*, *Linn. Suppl.* p. 171; *Thunb. Fl. Cap.* vol. ii. p. 165; *Masson Stapel. Nov.* p. 17, t. 23.

S. (*Gonostemon*) *pilifera*, *DC. Prodr.* vol. viii. p. 655.

PIARANTHUS *piliferus*, *Sweet, Hort. Brit.* p. 359.

The singular plant here figured was published upwards of a century ago by Linnæus from specimens (or more probably a description) communicated by Thunberg from the Cape of Good Hope, and a very fair figure of it was published by Francis Masson in 1796, in his “*Stapelia NoVe.*” Nothing further was known of it till 1882, when living specimens were received at the Royal Gardens from the Capetown Botanical Gardens, which flowered in 1883, and from which the present drawing was made. Previous to this, however, living specimens of another species of the genus were sent to Kew by Sir Henry Barkly, when Governor of the Colony, upon which Mr. N. E. Brown, in 1880, founded the genus *Trichocaulon*, to which also he referred the *Stapelia pilifera* of Linnaeus.

The genus *Trichocaulon* is placed by Mr. Brown next to *Hoodia* (see Tabs. 6228 and 6348), of which it has the habit, but differs in the small five-lobed corolla, and deeply bilobed processes of the outer corona, which are horizontal and subfalcate. Both species are natives of the Karroo

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district. The other species, *T. flavum*, N. E. Br., has a yellow corolla five-cleft to the base.

T. piliferum flowered at Kew in April, 1883, from specimens sent by Prof. MacOwan, F.L.S., Director of the Botanical Garden at Capetown.

Masson says of it, that it is found under shrubs on the driest hills of the Karroo near Roggevedt, and that it is eaten by the Hottentots, who call the plant Guaap.

DESCR. *Stem* short, stout, as thick as the thumb, buried in the soil. *Branches* tufted, straight, cylindric, simple, erect, four to six inches high and one and a half to two inches in diameter, rounded at the top, dull grey green, with thirty to forty deep furrows; ridges between the furrows presenting a series of mamillary smooth tubercles tipped with a stout bristle one-sixth of an inch long that has a white base. *Flowers* one-half to two-thirds of an inch in diameter, sessile in the furrows. *Sepals* one-third the length of the corolla-tube, ovate, acuminate. *Corolla* between funnel- and bell-shaped, pale yellow red without, dark purple within, five-lobed above the middle; lobes broadly triangular, acuminate, papillose within, spreading, tips produced. *Column* small, dark purple; lobes of outer corona horizontal, deeply two-lobed; lobes falcate, the tips of those adjacent pairs almost touching. *Pollen-masses* semicircular, gland minutely winged.—*J. D. H.*

Fig. 1, Flower; 2, lateral view of staminal column; 3, the same viewed from above; 4, pollen-masses:—*all enlarged.*

N^o 744



Syd Edwards del. Pub by T Curtis St Geo Crescent Mar 1884. F. Sander sculp

TRITOMA MEDIA. GLAUOUS-LEAVED
TRITOMA.

Class and Order.

HEXANDRIA MONOGYNIA.

Generic Character.

Cor, monopetala campanulato-cylindracea, 6-dentata, explicata. *Stam.* receptaculo germinis infixa, rectissima, libera, exserta, alterna plurimum longiora. *Stigm.* punctum obscurius penicillatum, stylum acute finiens. *Capsf.* cartilagineo-rigescens, ovata, obtuse trigona. *Sem.* 2-ordinum, plurima, triquetra, varieie angulata, sibi invicem adaptata. *G.*

OBS. *Herbæ perennantes de C. B. Spei. Radix rhizoma cæspitosum soboliterum, crassius fibratum; folia scirpoidea, radicalia, ambientia, de collo convolutum fasciculato divergente erecta, carina et canali facta argute triangularia, attenuata sursum. Scapus centralis simplicissimus. Flores penduli, racemose spicati, imbricatim conferti. Fructus erigitur. Sem. nigra, hedris lævibus, angulis extenuatis. Genus primo ALETRIDEM, recentius ad VELTHEIMIAM redactum, etsi revera ALOES plura habeat, a qua dignoscatur tamen foliorum natura haud adeo insigniter succulento vel spongiosocrassa; corolla non ex laciniis levissime coherentibus (quarum intimæ 3 sua latera habent libera) conflata; potissimum vero staminibus longius exsertis, perdisparibus, neque assurgentibus; denuo capsula cartilagineo-dura. A VELTHEIMIA distat capsula non pendula, neve membranaceo-inflata, nec maxima cum oculis alato-compressis atque submonospermis; ultra, filamentis haud corollæ accretis, præter habitum non bulbosum aliundeque diversum. Ab ALETRIDE rursus (farinosam intelligimus, quæ a fragrante item heterogenea) corolla non tuberculatim rugosa; staminibus haud corollæ adfixis; stylo haud in 3 solutili, indoleque in universum abunde aliena. Huc VELTHEIMIA uvaria et pumila. TRITOMA τρις et τεμνω seco; ob foliorum acies trinas acutas. *G.**

Specific Character and Synonyms.

TRITOMA *media* foliis e lata basi longe attenuatis, glaucis, omni scabritie nudis, tenerrimis, extimis facile refractis; spica oblonga, pyramidata; corolla clavato-cylindrica; crenis patulis. *G.*

ALETRIS *sarmentosa*. Bot. Rep. tab. 54.

VELTHEIMIA *repens*. Ejusd. Reces. 18. 63.

Easily distinguished from *Uvaria* by its smaller glaucous leaves, the edges and keel of which are not prickly ferrate as in that; from *pumila* again by its leaves being not so small nor so linear, the corolla neither cyathiformly campanulate nor so short. Our plant is nearly as much larger than the last as it is smaller than the first; hence we have called it *media*, *sarmentosa* being absurdly erroneous and *repens* not exact, besides applying equally to the three species.

Introduced, as we are told, into this country by Mr. WILLIAMS, Nurferyman at Turnham-Green, who has many very rare Cape liliaceous plants. The stem is higher than the leaves, and sometimes attains three feet, but more commonly does not exceed one and a half. The flowers are produced early in the Winter; have no scent.

It has stood in the open ground with us during the three last Winters; but we have always cut off the flowering stem and placed it in water within doors; the other parts of the plant have endured the weather without protection, and grown vigorously the following Summer.

It is more usually treated as a hardy greenhouse plant, and kept in deep pots of light earth. Propagates very fast by suckers.
G.



TRITOMA PUMILA. LESSER TRITOMA.

Class and Order.

HEXANDRIA MONOGYNIA.

Generic Character.—*Vid. Num.* 744.

Specific Character and Synonyms.

TRITOMA *pumila* foliis distichis, margine et carina perminutim ferrulato-scabrida; caule brevior; spica oblonga, conferta; corolla curtata, cyathiformi-campanulata. G.

VELTHEIMIA *pumila*. Willd. *Sp. Pl.* 2 182.

ALETRIS *pumila*. Hort. Kew. 1. 464. Mart. Mill. *Dict.*

This smaller species differs widely from the two foregoing; in having the leaves arranged distichwise or opposite, and not ambiently as in those; in having a short corolla of a cup-campanulate shape; as also in size, and time of flowering. From *media* it may be known at first sight by its leaves not being glaucous; from *Uvaria* by smaller size and shortness of corolla.

Found at the Cape by MASSON, and introduced by him into Kew Gardens in 1774. Blooms from September to November.

Our drawing was taken at Mr. WOODFORD's; we also saw it at Mr. WILLIAMS's Nursery, Turnham-Green; it seems as hardy as the others. G.

N^o 758



Bot. Ed. 2d. Pub. by T. Curtis. St. Geo. Crescent, July 11, 1854. F. S. and M. 1854.

TRITOMA UVARIA. SERRULATE-LEAVED
TRITOMA.

Class and Order.

HEXANDRIA MONOGYNIA.

Generic Character.—*Vid. Num.* 744.

Specific Character and Synonyms.

- TRITOMA *Uvaria*; foliorum margine carinaque spinuloso-ferrata; spica ovali-cylindrica, corolla clavato-cylindrica.
- VELTHEIMIA *Uvaria*. *Willd. Sp. Pl.* 2. p. 182. *Jacq. Fragm.* 7. t. 4. f. G.
- ALETRIS *Uvaria*. *Syst. Veg.* 277. *Hort. Kew.* 1. p. 464. *Mart. Mill. Dict.* n. 4.
- ALOE *Uvaria*. *Sp. Pl.* 460. *Kniph. cent.* 9. n. 5. *Knorr delic.* 1. t. A. 13.
- ALOE foliis linearibus radicalibus membranaceis. *Hort. Cliff.* 133. *Roy. Lugd.* 23.
- ALOE africana folio triangulari longissimo et angustissimo, floribus luteis foetidis. *Commel. Hort.* 2. p. 29. t. 15. *Seb. thes.* 1. p. 29. t. 19. f. 3.
- ALOE africana folio triangulo, longo, floribus ex luteo rubris, vulgo Iris uvaria. *Weinm. Phyt. Ic.* 45. a.

A native of the Cape of Good Hope. Cultivated in our gardens so long ago as the year 1707. Blooms in the Autumn. Is sufficiently hardy to resist the cold of our milder Winters, but in very severe weather requires to be protected from the frost. Is usually propagated by suckers, as also seed, which it produces freely. G.



VITIS BAINESII.

Baines's Gouty Vine.

Nat. Ord. AMPELIDEÆ.—TETRANDRIA MONOGYNIA.

Gen. Char. (including CISSUS, Linn.). *Calyx* lævis, integer vel 4–5-dentatus. *Petala* 4–5, libera v. apice calyptratim cohærentia. *Discus* varius v. obsoletus. *Stamina* 4–5, infra marginem disci inserta; *antheræ* liberæ. *Ovarium* ovoideum v. subquadratum, 2-loculare (interdum imperfecte), rarissime 3–4-loculare. *Stylus* 0 v. brevis, conicus vel subulatus; *ovula* in loculis 2. *Bacca* ovoidea vel globosa, 1–2-locularis; *loculis* 1–2-spermis.—Frutices *cirrhosi*, *sarmentosi*, sæpe *alte scandentes*. Folia *simplicia vel composita*, rarissime *bipinnata*, foliolis *integerrimis serratis v. dentatis nunc pellucido-punctata*. Pedunculi *oppositifolii v. rarissime axillares*, sæpissime *versus apices ramulorum siti*. Flores *parvi, umbellati, cymosi paniculati racemosi v. spicati, ebracteati, non raro polygami*. Benth. et Hook.

VITIS *Bainesii*; succulenta, glauca, trunco ovato carnosio napiformi, ramis subspithamæis erectis simplicibus ecirrhosis; foliis ternatis breviuscule petiolatis (infimis nunc simplicibus), foliolis ovatis oblongisve grosse inæqualiter serratis penniveniis (venis subtus prominentibus), stipulis binis oppositis subulato-lanceolatis, pedunculis terminalibus longitudine caulis, floribus cymosis, pedicellis glandulosis, petalis cohærentibus calyptriformibus vel demum patentibus.

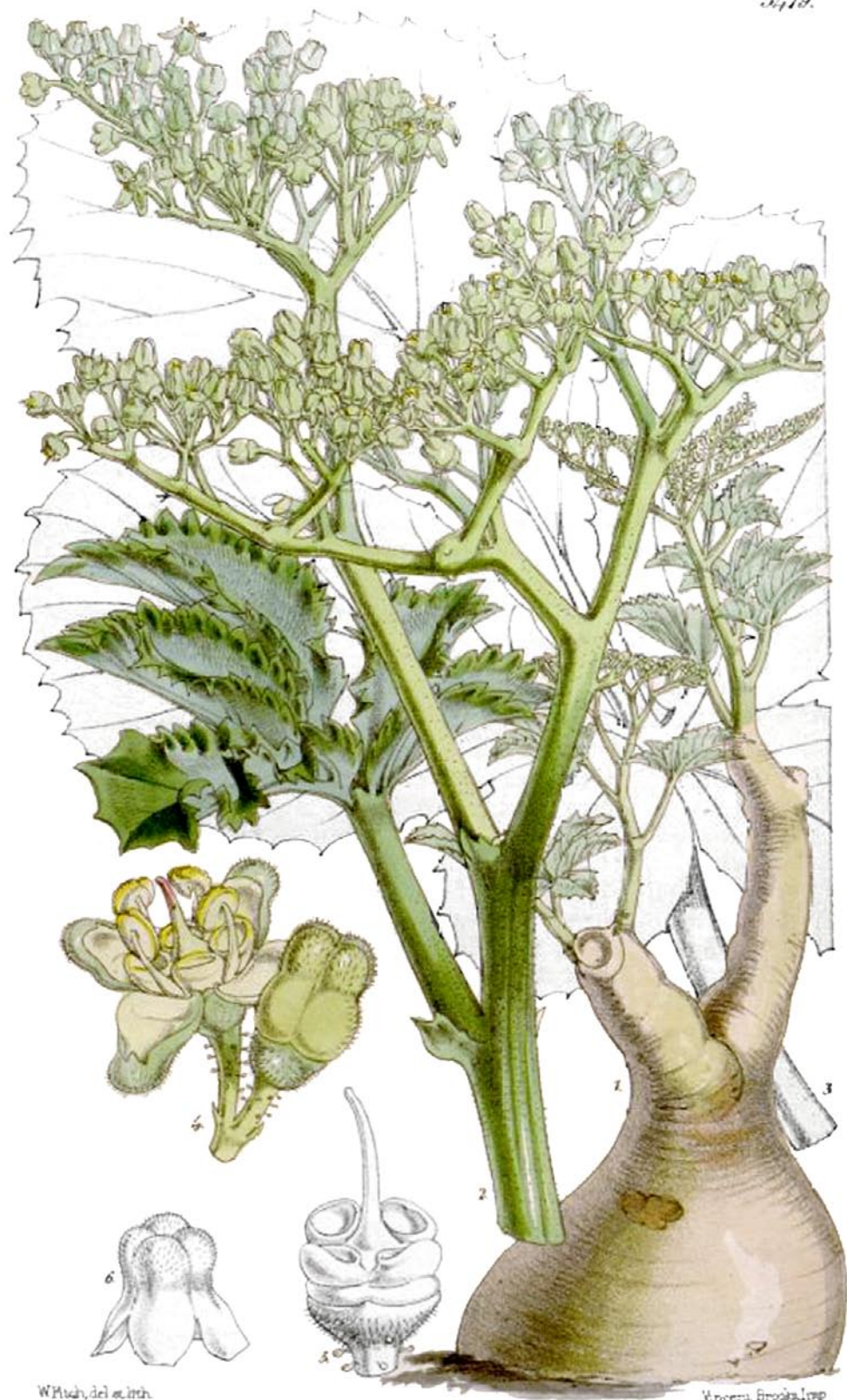
I believe botanists have generally agreed that *Cissus* and *Vitis* constitute but one genus, hardly affording sectional characters. Recent researches in tropical Western Africa have made known to us a remarkable form of this genus, with a very podagrous stem, and short, very succulent leafy branches, of which the *Cissus macropus* of Angola and Benguella, admirably described by Dr. Welwitsch in the ‘Journal of the Proceedings of the Linnean Society’ for September, 1864, p. 77, must be considered the type. The description is prefaced by some admirable remarks on the *Ampelideæ* of the countries just mentioned. “Among the numerous groups of plants,” says this accomplished botanist, “which more or less affect the physiognomy of the vegetation of Western Africa, the *Ampelideæ* hold a prominent position. They are interesting also to phytographists, from the fact that the nu-

merous species of *Cissus* (*Vitis*), by their varied habit and mode of growth, characterize the three great botanical regions into which, in my opinion, the district of Angola and Benguela must be divided. The entire number of species of *Ampelideæ* found by me in the above-named countries amounts to about forty (in which, however, are included two species of *Leea*), and a very remarkable plant, which occurs upon the high sandy plains of the district of Ambaca, and which ought probably to constitute a new genus. These forty species of *Ampelideæ* are spread over a space of 300 miles from east to west, commencing with the burning sandy steppes of the Atlantic coast region, and extending into the richly wooded, cool, elevated plains of the interior. Throughout this space the number of species increases gradually, and the number of individuals becomes continually greater. With regard to their geographical distribution, it is found that the species with thick, *sappy, fleshy stems* preponderate in the littoral regions (0–1600 feet alt.); those with *elongated, twining stems*, in the region of the primeval forests; and the species with *upright, scarcely twining stems*, in the highest region of the elevated plains of the interior. Thus, the species ‘*caule stante*’ are very rare in the littoral region, whilst almost all the species which are found in the region of the elevated plains exhibit a short upright stem, without any tendency to scramble or to climb.”

We are favoured by Dr. Welwitsch with a living plant of his *Cissus macropus*, which has flowered, and will by-and-by appear in our pages; at the same time another of the same remarkable group has been sent to us from Namaqua Land by another distinguished African traveller and artist, Thomas Baines, Esq. Its turnip-like trunk is 18 inches in circumference, but differs remarkably, besides other characters, from *C. macropus*, in having the leaves ternate, not quinate; and it is further remarkable that, as Welwitsch’s plant inhabits the region where *Welwitschia mirabilis* grows in Benguela, so our *Vitis Bainesii* is found, we believe, in the region of the Namaquas, where Mr. Baines also found the *Welwitschia*.

Vitis Bainesii requires the protection of a warm stove, and it flowered in July, 1864.

Fig. 1. Entire flowering specimen,— much reduced in size. 2. Portion of a flowering branch, —natural size. 3. Bud and flower. 4. Calyx and pistil, with the large hypogynal glands. 5. Petals in a state of cohesion, hence calyptri-form: —all more or less magnified.



W. P. Wood, del. & lith.

Vincetoxicum officinale

VITIS MACROPUS.

Gouty-stemmed Vine.

Nat. Ord. AMPELIDÆ.—TETRANDRIA MONOGYNIA.

Gen. Char. (*Vide supra*, TAB. 5472.)

VITIS *macropus*; succulenta glauca, trunco ovato carnosio napiformi, ramis brevibus erectis simplicibus herbaceis ecirrhosis, foliis 5-foliolatis (infimo trifoliolato), foliolis ovato-ellipticis breviuscule petiolatis, junioribus præcipue albo-tomentosis undulato-plicatisque, stipulis binis oppositis lato-lanceolatis, floribus cymosis, petalis cohærentibus calyptriformibus.

CISSUS *macropus*. Welw. in *Journ. Proceed. of Linn. Soc.* v. 8. p. 77.

At our Tab. 5472 of this volume we gave a figure and description of a very remarkable gouty-stemmed Vine of tropical Western Africa (*V. Bainesii*), accompanied by some interesting extracts from a recent account of Dr. Welwitsch of another and nearly allied species found by that gentleman, the *Vitis* (or *Cissus*, Welw.) *macropus*. Of this, which has also flowered at Kew, we now offer a figure, and the description we shall translate from the able author's own words. We received the plant from Dr. Welwitsch, who introduced the plant to the gardens at Lisbon, where, as with us, it flowered in April and May, a season which corresponds with the autumn in its native country, South Benguela. It there grows in brackish (*subsalsis*) rocky plains of the Serra dos Montes Negros, near Mossamedes, also in dry mountains of Giraul towards the east, at an elevation of four to six hundred feet above the sea-level.

DESCR. A dwarf *tree*, one to two and a half feet high, quite succulent. The *trunk* forms a large ovato-conical *bulb* towards the apex, bi-tribrachiate, covered with a smooth herbaceous-green *bark* and a whitish-brown pergamentaceous *epidermis*, which separates from the bark in lamellæ as in the Birch-tree. *Root* consisting of long cylindrical subsimple *fibres*. *Branches* short, half to a foot and a half long, two to four inches thick, towards their apices dividing abruptly into *branchlets* producing

leaves and flowers, but no *tendrils* have been hitherto seen. *Branchlets* indistinctly striated and very patent, and, as well as the leaves and petioles while young, clothed with white arachnoid hairs, at length subglabrous, of the thickness of a finger, and, like the entire plant, abounding in aqueous juice. *Leaves* (at first plicate and albo-tomentose) long-petiolate, the lowest one on the branch tri-, the rest quinquefoliate. *Leaflets* ovate-elliptical or obovate, shortly petiolulate, unequally toothed, arachnoid-pubescent on both sides, the terminal one longer, petiolulate, four to five inches long, the lowest pair inequilateral at the base, the rest more or less cordate. *Stipules* two, at the base of the petiole, opposite, broad lanceolate, acuminate, deciduous. *Peduncles*, or by abortion terminal, about equal in length with the petioles, slightly striated, patent, slenderer than the petioles, dichotomo-ramulose, the *branchlets* obliquely erect, forming a broadish *corymb*. *Flowers* tetramerous, yellowish-green, rather small. *Calyx* very short, obsoletely dentate, the teeth sometimes scarcely distinguishable. *Corolla* of four petals, induplicate-valvate. *Petals* fleshy, induplicate at the apex, cohering by pairs, calyptrate, deciduous, very cucullate at the apex, white, fugacious. *Disk* much developed, consisting of four columnar teeth, quite distinct from each other, obliquely truncate at the apex, aurantiaco-glandulose, enlarged after the flowering. *Stamens* four. *Anthers* obovate, incumbent, yellow. *Ovary* ovate or ovate-conical, longer than the tubercles of the disk, two-celled. *Style*, when flowering, as long as the stamens, firm, straight, terminated by a simple (not capitate!) *stigma*. *Fruit*, which I have not seen, said to be a berry, the size of a pea, reddish-violet.—*Welwitsch, l. c.*

Fig. 1. A *very reduced figure* of a flowering plant. 2. Upper part of a flowering branch with young leaf,—*natural size*. 3. Fully-developed leaf,—*natural size*. 4. Flower-bud and fully-developed flower. 5. Ovary, with its four large glands at the base. 6. Calyptrate state of the corolla:—*Figures 4–6 more or less magnified*.



W. P. Smith del. et lith.

Vincent Brooks, Imp.

TABB. 5368, 5369.

WELWITSCHIA MIRABILIS.

African Welwitschia.

Nat. Ord. GNETACEÆ.—POLYGAMIA MONADELPHIA.

Gen. Char. Squamæ strobili homogami 4-fariam imbricatæ, perplurimæ floriferæ, fructiferae valde auctæ. Flores hermaphroditi et fœminei. FL. HERM. *Ferianthium* 4-phyllum, foliolis 2-seriatis, inferioribus connatis. Stamina 6, monadelphæ; antheræ 3-loculares. Ovuli integumentum disco stigmatiformi terminatum. FL. FŒM. *Perianthium* ampullaceum, compressissimum, 2-alatum. Ovulum maris, sed processu styliformi recto apice simplici lacero. Fructus siccus, squamis membranaceis strobili velatus.—Truncus obconicus, lignosus. Folia 2, opposita, longissime linearia, dilacerata, nervis parallelis. Hook. fil.

WELWITSCHIA *mirabilis*.

WELWITSCHIA *mirabilis*. Hook.fil. in *Trans. of Linn. Soc.* v. 24. p. 1. cum tabulis L-XIV.*

The old adage “Semper aliquid novi ex Africa provenire,” holds good in the present day as in times long gone by. It is little more than two years and a half since the first knowledge of this singular plant, the subject of our two plates, reached Europe, and was contained in a letter addressed to myself by its discoverer, Dr. Frederic Welwitsch, a talented naturalist, then on a botanical mission at St. Paul’s, Loanda, on account of the Portuguese Government. The account was soon published, and excited, as may be supposed, the greatest interest among the most eminent of European botanists, an interest which had never been exceeded, if equalled, since the discovery of the *Rafflesia*. Nor did it want an historian to describe fully its character and affinities, and external and internal organization; these being all fully detailed in the work above quoted. Having, however, actually received living plants at Kew, (though in a dying condition,) besides copious dried specimens, through the kindness of two gentlemen

* The expense of the execution of this fine series of 4to plates from the pencil of Mr. Fitch, was defrayed from a grant from the fund for the promotion of science, placed annually by Parliament at the disposal of the President and Council of the Royal Society.



still residing in South-western Africa, Joachim Monteiro, Esq., of Loando, and C. J. N. Andersson, Esq., of Damara Land, we are justified on that ground in giving it a place and a brief notice in the 'Botanical Magazine,' and thus extending a knowledge of the subject (compiled wholly from the history and figures in question) among many who may not have the opportunity of consulting the Linnean Society's Transactions. As to the cultivating of this plant in our stoves, we despair of it altogether, as much as we do of rearing the *Raffesia Arnoldii*. Climate, soil, and native locality are all against success; yet trials should be made, and no doubt will be made, to raise it from seed, whenever opportunity may offer.

Dr. Welwitsch found the plant in 1860 inhabiting the elevated sandy plateau near Cape Negro, western tropical Africa, lat. 15° 40' S. Mr. Thomas Baines, the able artist in Gregory's exploring expedition across North Australia, and who accompanied Dr. Livingstone on the Zambesi mission, while travelling the following year in the Damara country, in lat. 24° or 25° S., and about 500 miles south of Cape Negro, was so struck with the appearance of this same plant, that he made coloured drawings of it and others, as illustrative of the vegetation of the country, and had the goodness to send them to me, accompanied by some cones; but these latter were packed without being dried, and being a long time *en route* to the Cape and to Europe (more than a year), and being packed with the succulent leaves of a gigantic Aloe, they arrived in a very decayed state. Happily, however, the cones contained ripe seeds, which by hardening in alcohol enabled Dr. Hooker to satisfy himself of their great similarity in development and structure with those of *Cycadeæ* and *Gnetaceæ*. The native name "*Tumbo*" was communicated both by Dr. Welwitsch and Mr. Baines; but as the same name is given to the gigantic Aloe of the country, it is a generic rather than a specific name among the aborigines: for to the branch of the cones Mr. Baines had written, "called by the Hottentots '*Ghories*,' and by the Damaras '*Nyanka-Hykamkop*.'" As we were now in possession of specimens, however imperfect, of this wonderful plant from Mr. Baines, and very anxious that its discovery should be announced, Dr. Hooker wrote to Dr. Welwitsch, reminding him of a request he had made, that a full account of his discovery should appear in the Linnean Transactions, and urging him either to make the plant known himself to the scientific world, or to send his specimens here for publication; proposing at the same time that it should be allowed to bear his name, and to be called *Welwitschia mirabilis*. M. Monteiro (as already mentioned) also sent us plants collected at Mossamedes (Little Fish Bay of the English charts) in 1862. These were gathered during "a jour-

ney of about thirty miles into the interior from the coast, in ground of a hard quartzose character, and were generally growing near the little ruts worn in the plain by running water during the rainy season." Several Portuguese of Cape Negro assured him that they had seen specimens measuring (as Dr. Welwitsch had informed him) six feet across the apex of the trunk, and even larger, with the ribbon-like leaves two and even three "*bracas*" (fathoms) long !

I have now, in reference to the few intelligent persons who have seen the plant in its native plains, only to make a brief extract from the letter of the eminent African traveller, C.. J. Andersson, Esq , while resident in Damara Land, at Otjin Cingué, Feb. 12th, 1862; this was written in the absence of Mr. Baines, in reply to some queries I had addressed to him: "The plant you inquire about, and which has so much awakened your curiosity, is well known to me. Indeed, it is so peculiar as scarcely to be mistaken, even from the rudest description. It is only found in one single locality, that is as regards Damara Land, which locality is exceedingly circumscribed. It grows moreover in sandy places, and luxuriates when it can find a few stones where to fix its extraordinary tap-root, penetrating often several feet deep, so that it is indeed a work of labour and patience to extract one single plant. I have been thus occupied more than an hour, and even then I have come away with only a portion of the root. The leaves attain a length of several feet, a small portion at the point only being withered; in other respects they are evergreen; they are straight-grained, and you can tear them from top to bottom without deviating a single line from a straight course. Rain rarely or never falls where this plant exists. I have crossed and re-crossed Damara Land throughout its entire length and breadth, but only found the plant growing on that desperately arid flat, stretching far and wide, about Waalvisch Bay, or between the 22nd and 23rd degrees of south latitude. It is most common about the lower course of the river Swakop. But I feel my description is very inadequate to the subject, and shall endeavour therefore to procure the plant itself, and forward it at an early date to England.* Indeed, I would have sent plants years ago, had I not been under the impression that you had already specimens of it, for I assisted Mr. Wollaston once to excavate a couple, which I thought he purposed presenting to the Kew Gardens. I know that the specimens were received at the Botanical Garden at Cape Town, for I saw them there only the other day, pitched away among some rubbish. No one seemed to take the slightest notice of them, which rather surprised me, since the plant cannot well escape even the dullest

* This promise has been promptly performed.

eye, it is so singular." [This latter statement is most discreditable to the authorities of that Colonial Garden, and such as we trust is unknown in any other.]

DESCR. In this we shall confine ourselves to the more popular portion of Dr. Hooker's. We must refer for the more scientific history to the Linnean Transactions. "It is a *woody plant*, said to attain a century in duration, with obconic *trunk* about two feet long, of which a few inches only rise above the soil, presenting the appearance of a flat two-lobed depressed mass, sometimes, according to Dr. Welwitsch, attaining 14 feet in circumference, and looking like a round table. When full grown, it is dark-brown, hard and cracked over the whole surface, much like the burnt crust of a loaf of bread: the lower portion forms a stout *tap-root*, buried in the soil, and branching downwards at the end. From deep grooves in the circumference of the depressed mass, two enormous *leaves* are given off, each six feet long (and probably often much more) when full grown, one corresponding to each lobe of the trunk: these are quite flat, linear, very leathery, and split to the base into innumerable thongs, that lie curling upon the surface of the soil. Its discoverer describes these same two leaves as being present from the very earliest condition of the plant, and assures me that they are in fact developed from the two cotyledons of the seed, and are persistent, being replaced by no others. From the circumference of the tabular mass above, but close to the insertion of the leaves, spring stout, dichotomously branched *cymes*, nearly a foot high, bearing small erect scarlet *cones*, which eventually become oblong, and attain the size of those of the common Spruce Fir. The *scales* of the cones are very closely imbricated, and contain, when young and still very small, solitary *flowers*, which in some cones are hermaphrodite (structurally but not functionally), in others female. The *hermaphrodite flower* consists of a perianth of four pieces, six monadelphous stamens, with trilocular globose anthers, surrounding a central ovule, the integument of which is produced into a styliform sigmoid tube, terminated by a discoid apex. The *female flower* consists of a solitary erect *ovule*, contained in a compressed utricular *perianth*. The mature cone is tetragonous, and contains a broadly-winged *fruit* in each scale. Every part of the plant exudes a transparent gum."—*Welwitschia* is a dicotyledonous plant, belonging to the gymnospermous group of that class, and having a very close affinity with both *Ephedra* and *Gnetum*, but differing from all previously known gymnosperms in having hermaphrodite flowers, and in wanting the disk-bearing wood-cells." Notwithstanding these peculiarities, Dr. Hooker places it in the Nat. Ord. *Gnetaceæ*, of which it is the only South African representative.

TAB. 5368.—Fig. 1. Copy of the drawing of a young flowering plant, believed to be from fifteen to twenty years old, made by Don Ferdinand da Costa Leal for Dr. Welwitsch,—*on a greatly reduced scale*. 2. An old plant, from which the panicles have fallen, as often seen in the deserts,—*reduced to about one-fourteenth of the natural size*.

TAB. 5369.—Fig. 1. Longitudinal section of a very small and young specimen of the trunk, taken through both leaves, showing the insertion of the latter,—*natural size*. 2. Peduncle and cones of hermaphrodite flowers, immediately previous to expansion,—*natural size*. 3. Scale of the cone, with bud of hermaphrodite flower in its axis. 4. Flower, with the inner perianth scale drawn back, showing the staminal tube and discoid apex of the ovule. 5. Stamens and enclosed ovule. 6. The same laid open, showing the position of the ovule:—*magnified*. 7. Branch of the panicle,—*natural size*. 8. Young scale, with the female flower seated on a conical prominence of the rachis. 9. Female flower, at the period when changes commence in the embryo-sac. 10. Ovule. 11. Back view of a scale from the female cone:—*magnified*. 12. Upper scale, *natural size*, containing a nearly mature seed. 12*. (By an accident this figure stands without a number on the Plate.) Ovule, with the lower part of the integument removed in front, exposing the nucleus. 13. Ripe seed and base of pericarp, showing the ramifications of vascular bundles in its walls. 14. Longitudinal section of seed, showing the calyptriform integument at its apex, the only other integument being the nucleus terminating upwards in its fleshy cone. The obovoid mass in the interior is the albumen, crowned by the coiled-up suspensor. 15. Longitudinal section of the albumen, showing the embryo, with its suspensor still attached to the cone of the nucleus above:—*magnified*.



M. S. del J. N. Fitch & Co.

Vincent Brooks, Day & Son, L. & Co.

L. Reeve & Co. London

TAB. 8056.
WITTMACKIA LINGULATA.
West Indies.

BROMELIACEÆ. Tribe BROMELIÆ.

WITTMACKIA, *Mez in Mart. Fl. Bras.* vol. iii. 111. p. 275.

Wittmackia lingulata, *Mez l.e. et in DC. Monogr. Phan.* vol. ix. p. 140; a speciebus reliquis floribus longioribus differt.

Folia circa 10, rosulatim disposita, rigida, lorata, apice rotundata, breviter cuspidata, circa 2 ped. longa, $2\frac{1}{2}$ poll. lata; aeulei breves, basi dilatati, atri, 3 lin. inter se distantes. *Scapus* primum floccosus, demum glabrescens; vaginæ lanceolatae, integræ vel paucidentatæ, circa $1\frac{3}{4}$ poll. longam; bracteæ lanceolatæ, membranaceæ; panicula pinnatim ramosa; flores numerosi, sessiles. *Sepala* alba, ovata, aristata. *Petala* ovata, e basi oblonga, lutea. *Stamina* interiora ad petala affixa, iisque multo breviora; filamenta prope apicem antherarum mucronatorum affixa. *Ovarium* glabrum, subcylindricum.—*Bromelia lingulata*, Linn. Sp. Pl. ed. 1, p. 285; Mill. Gard. Dict. ed. 8, n. 2; Ait. Hort. Kew. ed. 2, vol. ii. p. 201. *Hoplophytum lingulatum*, Beer, Bromel. p. 139. *Chevalliera lingulata*, Griseb. Fl. Brit. W. Ind. p. 591. *Æchmea lingulata*, Baker in Journ. Bot. 1879, p. 164, et Handb. Bromel. p. 45, partim. *Bromelia ramosa vel racernosa, foliis arundinaceis serratis*, Plum. Nov. Gen. Pl. p. 46, t. 8 (1703). *B. foliis serratis spinosis, etc.*, Burm. Pl. Amer. Plum. p. 53, t. 64, fig. 1 (1755).

This plant was described as long ago as 1703 by Plumier (*l.c.*) as an American plant, and in 1759 Philip Miller enumerated it in the 7th edition of his Dictionary as in cultivation, having been received by him from St. Christopher's (now St. Kitt's). It appears never to have become commonly cultivated, and has rarely been sent home by collectors, although Grisebach states that it grows in several of the West Indian islands. The plant figured was grown in the Royal Botanic Gardens, Glasnevin, and communicated by Mr. F. W. Moore, A.L.S.

From the above cited synonymy it will be seen that this species has been placed in several different genera; that in which it is now included differs from *Æchmea* in its petals being destitute of ligules, and from *Hohenbergia* in the ovules being umbonate or obtuse, not caudate, at the apex. Besides the present plant, three species have been described, viz.—*W. odora*, Mez, *W. Glaziovii*, and *W. patentissima*, Mez, all of which are natives of Brazil, while the first named extends into Guiana and the West Indies. *W. odora* was cultivated at Glasgow by Sir W. Hooker.

JANUARY 1ST, 1906.

There are wild specimens in the Kew Herbarium from Trinidad, St. Vincent, St. Lucia, Martinique, and St. Thomas, and it is described as growing on trees, and in fissures of rocks.

Descr.—*Leaves* about ten in a rosette, firm, lorate, rounded, shortly cuspidate, about two feet long, two inches and a half wide; spines short, broad-based, black, about three lines apart. *Scape* floccose when young, glabrescent in age; sheaths laceolate, entire, or sparingly toothed, about an inch and three-quarters long; bracts lanceolate, membranous; panicle pinnately branched: flowers numerous, sessile. *Sepals* white, ovate, bearing an awn nearly one line long. *Petals* ovate from an oblong base, yellow. *Stamens* much shorter than the petals; filaments inserted near the apex of the mucronate anthers, the three inner adnate to the petals. *Ovary* glabrous, sub-cylindric.—C . H. WRIGHT.

Fig. 1, a flower; 2, petal; 3, stamen; 4, stamen showing the insertion of the filament; 5, style-arms; 6, inflorescence:—1–5 , *enlarged*; 6, *one-third natural view*.



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N. 1700

J. H. Sargent

YUCCA ALOIFOLIA. TALL-STEMMED
ADAM'S NEEDLE.

Generic Character.—*Vid. No. 900.*

Specific Character and Synonyms.

YUCCA *aloifolia*; caudice arborecente, frugifero foliis aliquoties altiore; foliis numerosissimis, lapsu inferiorum excelsè terminalibus, lanceolato-ligulatis, strictissimis, subtiliter denticulatis, juxta supra basin angustatis, interioribus erectius conniventibus; panicula racemosa, numerosa, subconferta, pyramidata, divaricata, ramulis laxis; corolla nutante. G.

YUCCA *aloifolia*. *Linn. Spec. Pl. ed. 2. 1. 457. Mill. Dict. ed. 8. n. 2. Hort. Kew. 1. 465. ed. 2. 2. 291. Decand. Pl. Gr. tab. 20. Desfont. Traité des Arbres. 1. 18. Lil. à Redouté. tab. 401, 402. Mich. Bor. Amer. 1. 196. Pursh Amer. Sept. 1. 228.*

YUCCA *gloriosa*. *Bot. Repository 473; (nec aliorum.)*

Y. arborecens foliis rigidioribus, rectis, serratis. *Dillen. Hort. Elth. 485. tab. 326. fig. 416.*

ALOE *yuccæ* foliis caulescens. *Pluk. Alm. 19. t. 256.f. 4.*

A. *americana*, *yuccæ* foliis arborecens. *Comm. Prælucl. 64. tab. 14.*

The most lofty of its genus yet known to us; the stem rising sometimes to near eighteen feet high even in this country. The leaves are narrower and stiffer than in *gloriosa* (see above, No. 1260), and their edges finely serrate and not entire as in that; the panicle much closer flowered, from two to three feet high; flowers suffused with purple on the outside. It does not bloom so freely as the two species already given in this work; and when it does the head decays, others sprouting out below. Usually kept in the greenhouse or conservatory, where we have seen vigorous plants, ten feet high and as thick as a man's arm, in garden-pots not more than a foot deep. It is said to thrive better in the open ground,

ground, and to flower there much stronger, when the seasons are favourable. We had not the opportunity of seeing the present plant, which flowered last October in the garden of Mrs. WALKER, at Stockwell. Native of both North and South America. Cultivated in 1696, in the King's Garden, at Hampton-Court. G.

ERRATUM.

No. 744, l. 13, a pede pag. pro "*præter habitum non bulbosum aliundeque diversum*," lege "*habitus præterea non bulboso aliundeque diverso*."



YUCCA ANGUSTIFOLIA. NARROW-LEAVED
ADAM'S-NEEDLE.

Class and Order.

HEXANDRIA MONOGYNIA.

Generic Character.

Cor. campanulata, patens. *Stylus* nullus. *Capsula* trilocularis.

Specific Character and Synonyms.

YUCCA *angustifolia*; acaulis, foliis glaucis, longo-linearibus mucronatis margine filamentosis, capsulis oblongo-obovatis, scapo simplici.

YUCCA *angustifolia*; acaulis; foliis longo-linearibus rigidis margine raro filamentosis, capsulis magnis obovato-cylindraceis. *Pursh. Flor. Amer. Sept. 1. p. 227.*

YUCCA *angustifolia*. *Nuttall Gen. Pl. amer. 1. p. 218.*

The present plant is the tie YUCCA *angustifolia* of PURSH, and different from the one which has been usually so called in our collections, and which we have already published under the name of *stricta* (No. 2222). The scape of *angustifolia* is simple; the leaves are still narrower recurved, and the threads on their margins very much longer; the laciniae of the corolla more acute; and it is altogether of humbler growth. PURSH described his plant from NUTTALL's herbarium; and our plant was raised from seeds brought over by Mr. NUTTALL, and presented to our friend AYLMER BOURKE LAMBERT, Esq. in whose garden at Boyton it flowered in July 1820. Our specific character is chiefly a version of that given by NUTTALL in his work above referred to, which, though small in bulk, is weighty in valuable matter.



W. Fisch. del. et lith.

Vincenz. Brookes, Imp.

YUCCA CANALICULATA.

Channel-leaved Yucca, or Adam's Needle.

Nat. Ord. LILIACEÆ.—HEXANDRIA MONOGYNIA.

Gen. Char. Perigonium hexaphyllum; foliola æquilonga, interiora latiora, campanulato-conniventia, ima basi connata, marcescendo-persistentia. Stamina 6, perigonii foliolis basi inserta; filamenta brevina, plana, apice latiora. Ovarium triloculare. Ovula in loculis plurima, horizontalia, biseriata, anatropa; stigmata 3, sessilia, basi subconnata, apice patentia. Capsula oblonga, obtuse hexagona, subbaccata, vertice primum forata, demum loculicido-subtrivalvis, trilocularis, v. septis secundariis incomplete sexlocularis. Semina plurima, biseriata, horizontalia, obovata, compressiuscula. Testa coriacea, nigra. Embryo axilis, dimidio albumine brevior, extremitate radiculari umbilico proxima.—Plantæ in America tropica cis æquatorem et in boreali calidiore indigenæ; caudice sæpius arborescente, interdum hypogæo; foliis in apice caudicis confertis, lineari-lanceolatis, crassis, rigidis, margine sæpius spinuloso-serratis; scapo e foliorum centro bracteato, paniculato. Endl.

YUCCA *canaliculata*; caule sesquipedali crasso, foliis densis bipedalibus lanceolatis crassis supra basin latioribus sensim spinoso-acuminatis rigidissimis insigniter concavo-canaliculatis subtus asperis superne lævibus marginibus integerrimis rubro-subcartilagineis, panícula ampla compacta densiflora, floribus sulphureis, perianthio globoso, foliolis late ovatis acutis concavis acutiusculis basi subito angustis.

We were much struck with the beauty of this *Yucca* in the cool greenhouse of W. Wilson Saunders, Esq., Hillfield, Reigate, in the summer of the present year. His flowering specimen had been purchased at the sale of the collection of the late Robert Bevan, Esq., of Bury St. Edmund's; name and locality unknown. A young plant of the same kind had been received by Mr. Saunders, from Paris. It appears to be quite undescribed, and is probably of Mexican origin. It belongs to the section "foliis margine integerrimis," and may rank next to *Yucca gloriosa*, Linn., differing however remarkably from that in the form and colour of the flowers, and still more in the singularly straight, rigid, very concavo-canaliculated foliage. We know of

SEPTEMBER 1ST, 1860.

no species, either, with such densely flowered panicles. The plant is probably of considerable age, and has perhaps attained its ordinary size.

DESCR. *Stem* erect, eighteen inches high, three to four inches in diameter, unbranched, transversely marked with the scars of fallen foliage. *Leaves* nearly two feet long, spreading on all sides, numerous, twenty to twenty-four inches long, closely imbricated on the trunk, lanceolate, firm and hard, coriaceous, subglaucous, contracted at the base, then dilated and gradually tapering to a rigid spinulose point, very concave in its whole length (*canaliculato-concava*), almost semicylindrical, asperous beneath, smooth above, the margins entire, with a subcartilaginous and red-brown line at the very edge of the younger leaves. *Panicle* terminal, a large compound raceme, each branch thickly clothed with large, sulphur-coloured, drooping, globose flowers. *Folioses* or *sepals* subconnivent, broad-ovate, scarcely acute, contracted at the very base. *Stamens* and *pistil* as in the genus.

Fig. 1. Flowering plant,—*much reduced*. 2. Portion of a leaf and of a panicle,—*nat. size*. 3. Pistil. 4. Stamen:—*magnified*.



TAB. 7650.

YUCCA ELATA.

Native of the South-Western United States.

Nat. Ord. LILIACEÆ.—Tribe DIRACÆNEÆ,

Genus YUCCA, Linn.; (*Benth. & Hook. f. Gen. Plant.* vol. iii. p. 778.)

YUCCA *elata*; caule fruticoso interdum furcato, foliis dense rosulatis linearibus strictis pallide viridibus pungentibus margine copiose filiferis, pedunculo foliis subduplo longiore, racemis multis laxis in paniculam densam rhomboideam dispositis, bracteis ovato-lanceolatis scariosis pedicellis longioribus, perianthio amplo albo extus leviter viride tincto, staminibus perianthio subtriplo brevioribus filamentis pubescentibus, stylo brevi columnari pubescente, fructu magno oblongo coriaceo tarde dehiscente, seminibus discoideis nigris.

Y. *elata*, *Engelm. in Coult. Bot. Gaz.* vol. vii. (1882) p. 17; *Collected Works*, p. 299. *Sergeant in Garden & Forest*, 1889, p. 568, fig. 146. *Trelease in Report Missouri Gard.* 1893, p. 201, tab. 10, 15, 22.

Y. *angustifolia* var. *elata*, *Engelm. Notes on Yucca*, p. 50. *S. Wats. in Proc. Amer. Acad.* vol. xiv. p. 253.

Y. *constricta*, *Baker in Journ. Linn. Soc.* vol. xviii. p. 229, non *Buckley*.

This shrubby *Yucca* is peculiar to the desert region of Arizona and the neighbouring states west of the Rocky Mountains. In the wild state the stem reaches a length of ten or twelve feet. In leaf and flower it closely resembles *Y. angustifolia*, Pursh (*Bot. Mag.* tab. 2236), but that is more hardy, and never has a long stem. The peduncle of the present plant is longer, and the inflorescence much more compound. It was first discovered by the botanists of the Mexican boundary survey more than thirty years ago, but has only lately been introduced into cultivation. The plant in the Royal Gardens, Kew, from which the present drawing was made, is growing in the large Temperate House, and flowered for the first time in the summer of 1896. It was purchased, along with other *Yuccas*, in 1893, from Mr. J. N. Gilcrease, of Sierra Blanca, Texas.

Descr.—*Trunk*, of the Kew plant, about a yard long, forked at the top, covered down to the base with reflexed withered leaves. *Leaves* densely rosulate, stiffly erect or
APRIL 1ST, 1899.

spreading, linear from a suddenly-dilated base, one and a half or two feet long, pale green, pungent, copiously filiferous on the margin. *Peduncle* twice as long as the leaves, furnished with copious spreading, linear bracts leafy. *Inflorescence* an ample, dense, rhomboid panicle; racemes lax, the lower six or nine inches long; pedicels in pairs, articulated at the apex; bracts ovate-lanceolate, scariose, longer than the pedicels. *Perianth* white, two inches long, hardly at all tinged with green on the outside when mature. *Stamens* one-third the length of the perianth; filaments pubescent. *Ovary* with a short, pubescent, columnar style. *Capsule* oblong, coriaceous, two inches or more long, finally dehiscent. *Seeds* large, black, discoid.—*J. G. Baker.*

Fig. 1, Stamen; 2, pistil, both enlarged; 3, whole plant, *much reduced*.

N^o 900



Pub. by T. Curtis. St. Geo. Crescent Jan. 1. 1800

Syl. Edwards del. F. A. S. fecit sculp.

YUCCA FILAMENTOSA. THREADY ADAM'S
NEEDLE.

Class and Order.

HEXANDRIA MONOGYNIA.

Generic Character.

Cor. hexapetalo-partita, campanulata. *Stam.* filamentis
superne crassioribus; antheris minimis. *Stigm.* 3, sessilia. *Caps.*
(*Bacca* carnosâ Gærtn.) obtuse trigona. *Sem.* plana.

Specific Character and Synonyms.

YUCCA *filamentosa* (*acaulis*) foliis oblongo-lanceolatis, marginibus distanter filiferis; stigmatibus recurvato-patentibus. *G.*

YUCCA *filamentosa.* *Syst. Vegetab. Murrr.* 337. *Mill. Dict.* 4. *Gron. Virg.* 152; 58. *Trew Ehret. t.* 37. *Hort. Kew.* 1. 465. *Willd. Sp. Pl.* 2. 184. *Michaux Flor. Bor-Amer.* 1. 196.

YUCCA foliis filamentosis. *Morif. Hist.* 2. p. 419.

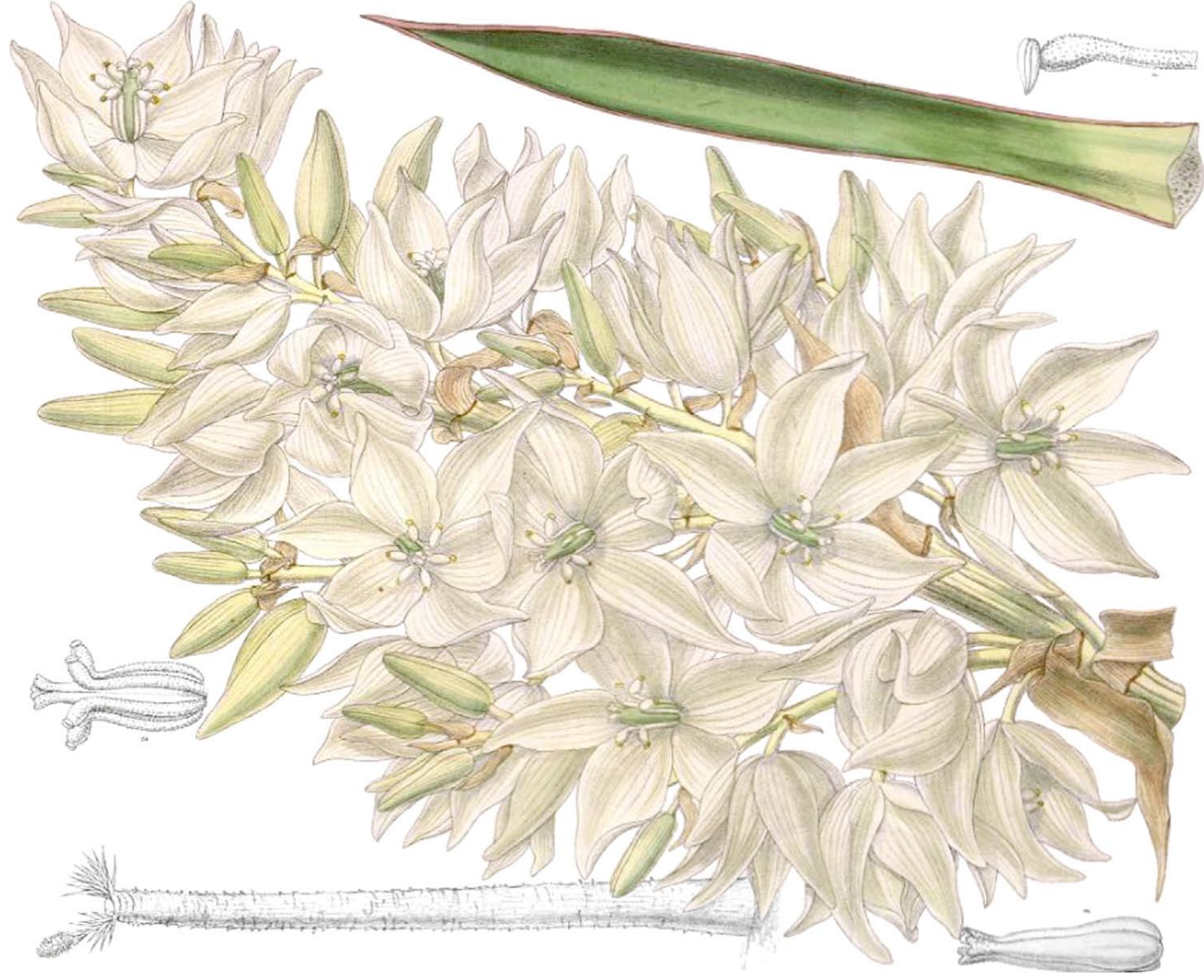
YUCCA *virginiana* foliis per marginem apprimè filatis. *Pluk. Alm.* 396.

According to MICHAUX a native of the western parts of Carolina and Virginia, growing on wilds near the sea-shore, with a stem rising sometimes to the height of five feet. An old inhabitant of our gardens, having been cultivated in them as far back as 1675. Hardy. Very ornamental; flowers about September or October. Is not uncommon in our Nurseries; propagated by suckers. *G.*

ERRATA.

No. 854, l. 14, pro "LACHENALIA angustifolia," lege "LACHENALIA lanceæfolia."

No. 895, l. 26, for "a flat two-edged rachis and pedicles," read "a flat two-edged stalk and rachis."



TAB. 7197.

YUCCA FILIFERA.

Native of North-East Mexico.

Nat. Ord. LILIACEÆ.—Tribe DRACENÆÆ.

Genus YUCCA, Linn.; (*Benth. et Hook. f. Gen. Plant.*, vol. iii. p. 778.)

YUCCA *filifera*; trunco arboreo valido ramoso, foliis ensiformibus dense rosulatis pedalibus vel sesquipedalibus filis marginalibus copiosis, floribus in paniculam angustam sæpissime pendulam dispositis, bracteis ovatis scariosis, pedicellis flore brevioribus apice articulatis, perianthii segmentis ovatis vel oblongis acutis exterioribus angustioribus, staminibus perianthio subtriplo brevioribus, filamentis clavatis arcuatis puberulis, antheris oblongis parvis, fructu oblongo baccato, seminibus crassis.

Y. *filifera*, Chaband in *Rev. Hort.* 1876, p. 439, fig. 97; 1880, p. 376; 1884, p. 53; *Gard. Chron.* 1888, vol. i. p. 743, fig. 97; p. 751, fig. 100; *Sargent in Garden and Forest*, vol. i. (1888) p. 78, figs. 13-14.

Y. *baccata* var. *australis*, Engelm. *Monogr. Yucca*, p. 44; *Baker in Journ. Linn. Soc.* vol. xviii. p. 229.

This is by far the finest of the filiferous Yuccas. The fullest account of it is contained in Professor Sargent's paper in the "Garden and Forest " for 1888 above cited. It was discovered in 1840 by Dr. Gregg near Saltillo in North-East Mexico, but was not introduced into cultivation till long afterwards. Professor Sargent writes about it as follows:—"Yucca *filifera* is a conspicuous object on the arid plains which rise from the Rio Grande to the foothills of the Sierra Madre. The great panicles of white flowers can be seen for miles in the clear atmosphere of that region, and look like gleaming waterfalls pouring out from the end of the branches. It first appears about fifty miles south of the Rio Grande, where, with the beautiful white-flowered *Cordia Boissieri* in the depression of the plain, it forms an open picturesque forest which extends almost to the valley of Monterey. The 'Palma' is common in the plains between Saltillo and Parras. It was seen by Dr. Parry as far south as San Louis Potosi, and no doubt will be found to extend widely over the high dry plains of north-eastern Mexico."

The history of the plant from which our figure was
OCTOBER 1ST, 1891.

drawn is very remarkable. The trunk was sent to Kew in October, 1888, by Mr. C. G. Pringle, from Monterey, through Professor Sargent. When it arrived at Kew it appeared to be quite dead, and the trunk was consequently placed in the Museum of Economic Botany. After remaining there two years it put out rudimentary leaves and an inflorescence, and on being transferred to the Temperate House these were fully developed in September, 1890. The leaves are shorter than in the wild type and the panicle is erect and less dense.

DESCR. *Trunk* finally arborescent and copiously branched; in our plant simple, cylindrical, fifteen feet long. *Leaves* densely rosulate, ensiform, thinner and smaller than in *Y. baccata*, a foot or a foot and a half long, with copious fine recurving threads splitting off from the margin. *Panicle* in our plant erect, but in the fully-developed wild plant drooping, four or six feet long by eighteen or twenty inches broad, very dense; pedicels articulated at the apex; bracts large, ovate, scariose. *Perianth* white, campanulate, an inch or an inch and a half long; segments ovate or oblong, acute, the three outer much narrower than the three inner. *Stamens* about a third as long as the perianth; filaments clavate, arcuate, pubescent; anthers small, oblong. *Pistil* overtopping the anthers. *Fruit* oblong, baccate, two inches or more long, pendulous, often constricted on the side towards the stem. *Seeds* black, often more than a line in thickness.—*J. G. Baker.*

Fig. 1, Stamen; 2, stamens surrounding the pistil; 3, pistil:—*all enlarged.*



(2662)

YUCCA GLAUCA. GLAUCOUS-LEAVED ADAM'S
NEEDLE,

Class and Order.

HEXANDRIA MONOGYNIA.

Generic Character.

Cor. campanulata, 6-fida. *Filamenta* clavata. *Germen* triquetrum stamina excedens. *Caps.* 3-locularis.

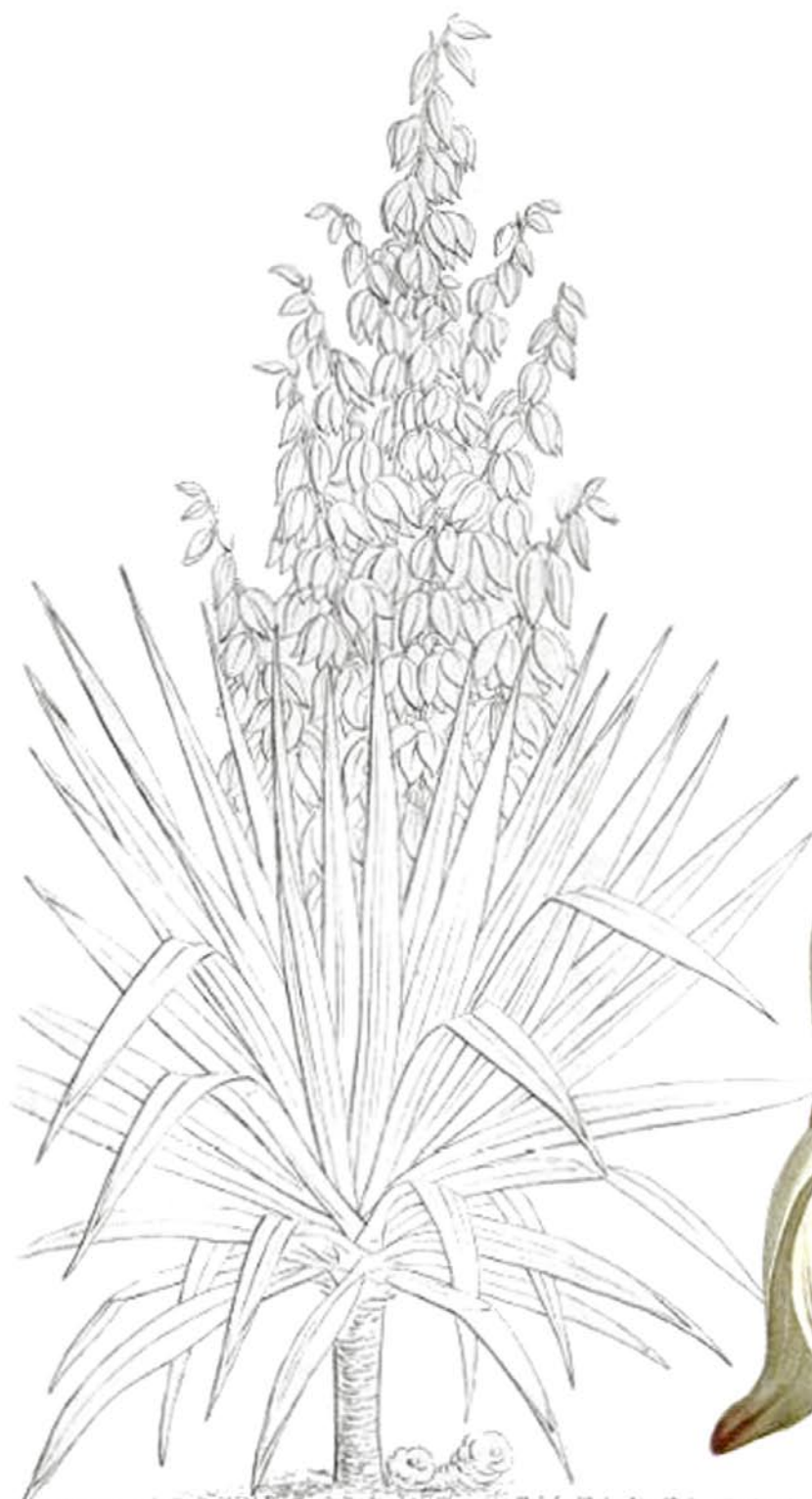
Specific Character and Synonyms.

YUCCA *glauca*; acaulis, foliis lanceolatis flaccidis glaucis integerrimis, laciniis corollæ ovatis patentissimis.

YUCCA *glauca*. *Noisette* Jard. *fruit?*

DESCR. *Leaves* lanceolate, glaucous, less rigid than in other species. *Scape* four or five feet high, with about twenty lateral branches, each bearing from ten to sixteen flowers, and the terminal spike has nearly thirty. The flowers are either solitary or in pairs, or now and then in threes. The *corolla* less globose than in most of the other species: the *laciniæ* expanding very wide.

Native of Carolina, whence it was imported by Mr. LYONS, and sold to the Hon. WILLIAM HERBERT, in Whose collection at Spofforth it proved quite hardy, having stood nine winters in 1823, in September of which year our drawing was taken.



Aut. Fideurth. Del.

Pub. by J. Smith. J. Geo. Craymont. Feb. 11810.



N° 1260.

J. Smith. J. Geo. Craymont.

YUCCA GLORIOSA. SUPERB ADAM'S
NEEDLE.

Class and Order.

HEXANDRIA MONOGYNIA.

Generic Character.—Vid. supra No. 900

Specific Character and Synonyms.

YUCCA *gloriosa*; (*caudex palmoideo-frutescens*;) foliis comofo-
fasciculatis confertis, lorato-lanceolatis, coriaceis,
strictis, longe acuminatis, spina valida terminatis,
margine integerrima; panícula remotius racemosa,
pyramidata, subaffurgenter divaricata; corolla ovato-
campanulata, pendulo-cernua; laciniis ovato-acu-
minatis, intimis subduplo latioribus; filamentis flac-
cidis, clavatis, introrsum conduplicato-canaliculatis,
minuta pube aspersis, corolla dimidio brevioribus; an-
theris exiguis, cordatis, adnato-incumbentibus; ger-
mine columnari, rotundato-anguloso, fulcato, superne
turgescente, in stigmata triostri-continua lineari-ob-
longa canaliculata parum divergentia abeunte. G.

YUCCA *gloriosa*. Linn. *Sp. Pl. ed. 2.* 1. 457. *Syst. Vegetab.*
Murr. 337. *Hort. Kew.* 1. 409. *Walt. Flor. Carol.*
124. *Michaux Flor. Bor-Amcr.* 1. 196. *Willd. Sp. Pl.*
1. 183.

YUCCA foliis margine integerrimis. *Hort. Cliff.* 130. *Upf.* 88.
Mill. Dict. ed. 7. 1.

YUCCA *gloriosa*. *Siricius beschr. derer in Gottorpf. gärt. blubend.*
Aloen. p. 61. *A. D.* 1705. *Opusc. Bot. Bibl. Banks.* v.
27.

Y. indica foliis Aloes fl. albo. *Barr.* 70. t. 1194.

Y. f. JUCCA. *Park. Par.* 434. tab. 435. f. 1.

Y. f. JUCCA peruana. *Ger. Herb. Emac.* 1543. Ic.

HYJUCCA f. YUCCA canadana, nostris nunc Jucca gloriosa
inodora. *De Bry. Floril. Renov. tab.* 142. *optime. Basil.*
1644. *apud Bibl. Banks.*

CORDYLINE foliis punentibus integerrimis. *Roy. Lugdb.* 22.
We

We have never met with a figure of this species in any of the more modern Botanical works. The plant given in ANDREWS's Botanist's Repository, plate 473, under the name of *gloriosa*, is *aloifolia*, a very distinct species; in that the trunk reaches from six to ten feet in height, here from six inches to two feet; in that the leaves have a narrow finely crenulate cartilaginous edging, here they are quite entire; in that the panicle is much closer, the racemelets more thickly beset with flowers, the corolla larger and longer with segments farther acuminate and purple on the outside, and has before expansion a remarkable assurgent curvature, as if reverberately beaked; the branchlets of the panicle are likewise more lax and drooping. The inflorescence in the present species is generally about three feet high; the caudex often garnished with leaves down to the ground, sometimes naked for near two feet. The bloom is without scent. Native of Carolina, where it was found by MICHAUX growing near the sea. Known in our gardens as far back as the time of PARKINSON and GERARD. Blooms about August.

Our drawing was taken from a plant in Mr. MALCOLM's greenhouse at Kenfington. G.



TAB. 7997.

YUCCA GUATEMALENSIS.
Central America.

LILIACEÆ. Tribe DRACÆNEÆ.

YUCCA, Linn.; *Benth. et Hook. f. Gen. Plant*, vol. iii. p. 778; *Baker in Journ. Linn. Soc.* vol. xviii. p. 219; et in *Gard. Chron.* 1870, *passim*.

Y. (§ *Sarcoyucca*) **guatemalensis**, *Baker in Ref. Bot.* vol. v. t. 313; *Engelmann, Coll. Bot. Works*, p. 289; *Trelease, Missouri Bot. Gard. Ann. Rep.* 1893, p. 184, tt. 1, 2, 19, inter species hujus sectionis foliis minute denticulatis non filiferis distincta.

Arbor circiter 40-pedalis. *Truncus* ad terram circiter 6 ped. ambitu, sursum gradatim angustatus, ad pedem supra solum 5 ped. ad 6 pedes supra solum 2 ped. ambitu, prope apicem tantum dense pauciramosus. *Folia* conferta, din persistentia, maxima circiter 4-pedalia, basi semiamplexicaulia, 5 poll. lata, paullo supra basin 3 poll. lata, 6 poll. supra basin $2\frac{1}{4}$ poll. lata, $2\frac{1}{4}$ ped. supra basin 4 poll. lata, paullo supra insertionem abrupte recurva, alte concavo-convexa, margine per totam longitudinem minute dentate, apice vix pangentia. *Paniculæ* dense ramosæ, fere sessiles, 3–4 ped. longæ; bracteæ quam pedicelli breviores; pedicelli 1–2 poll. longi, graciliusculi. *Flores* albi vel pallide luteo-virides, circiter 3-poll. diametro. *Perianthium* companulatum; segmenta lanceolata, 3 exteriora paullo angustiora, $1\frac{3}{4}$ –2 poll. longa, omnia obtusa, apice inflexa. *Stamina* quam pistillum breviora; filamenta clavata, puberula vel minute papillosa. *Ovarium* glabrum; styli brevissimi. *Fructus* baccatus mihi ignotus.—*Y. Roezii*, et *Y. Ghiesbreghtii*, Hort., *Dracenea Ehrenbergii*, *D. Lennei*, *D. yuccoides*, et *D. ensifolia*, Hort., fide Baker in *Journ. Linn. Soc. Bot.* vol. xviii. p. 222.

The above description is entirely drawn up from the specimen figured, which has been growing in the Temperate House, Kew, at least twenty-five years, and is now the largest of which the dimensions are on record. It is probably the same one that is figured in the “Refugium Botanicum,” and, if so, it was previously in the Succulent House. This species is one of the handsomest of the genus, but it is not quite hardy. The date of its introduction into this country is uncertain, yet it must have been long before 1873, when it was first figured, and then also from a plant that flowered at Kew. At that time it had a trunk from five to six feet high.

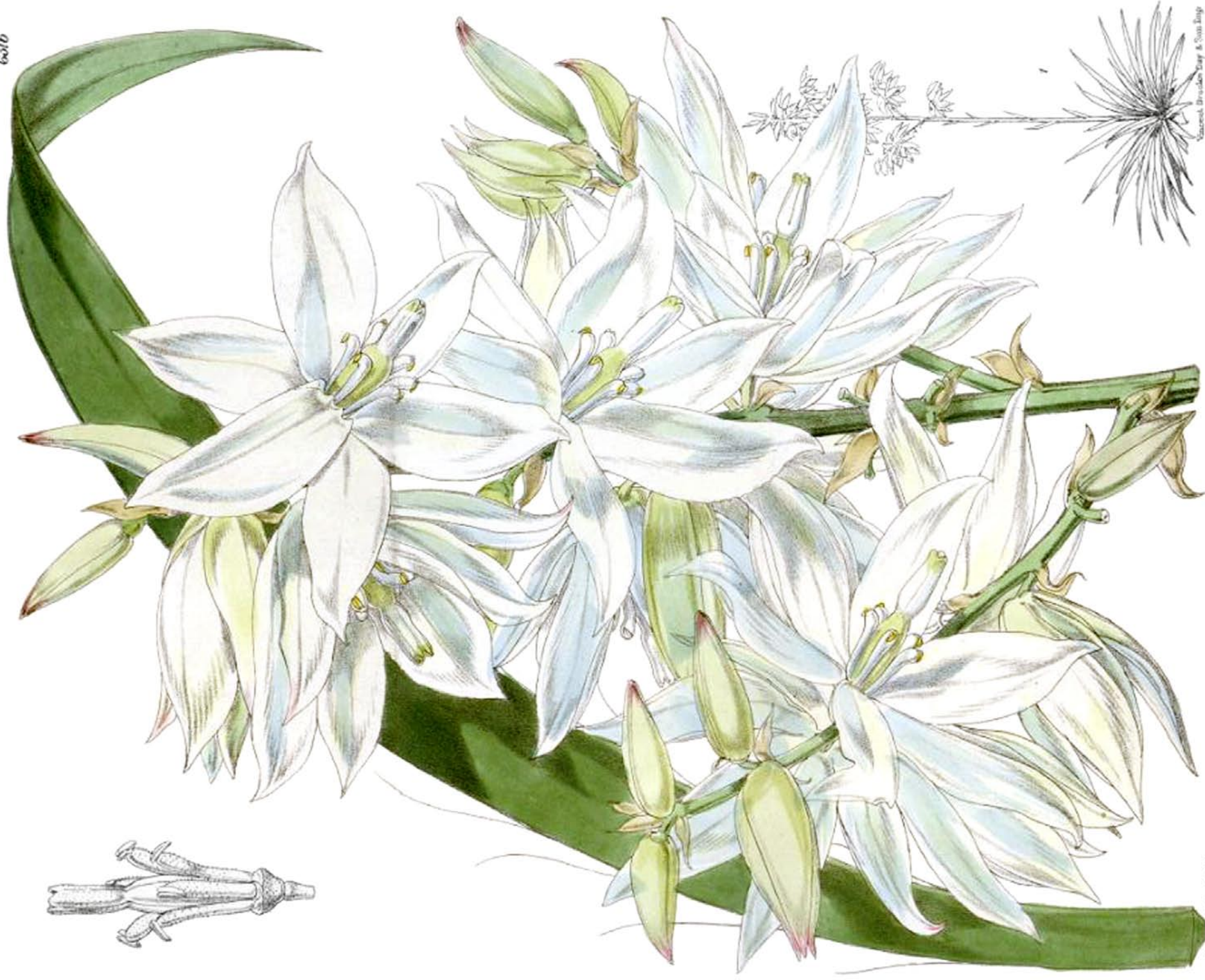
Dr. W. Trelease, Director of the Missouri Botanic Garden, who has more fully than any other botanist described and illustrated the genus *Yucca* and its allies, identifies *Y. guatemalensis*, Baker, with a plant included by Regel (*Gartenfl.* vol. viii. 1859, p. 35) under *Y. aloifolia*.

FEBRUARY 1ST, 1905.

Regel casually mentions that it was also known in gardens under the name of *Y. elephantipes*, on account of the stem being thickened at the base. Consequent on this identification, Trelease (*Missouri Bot. Gard. Ann. Rep.* 1902, p. 94, tt. 51, 82, & 84, f. 7) adopts the last name for the species, a course which we do not feel justified in following. He may be right, but even if he is, it seems undesirable to take up a name that has no more claim than some of the other synonyms cited above. As to the swollen base of the stem, that may be an inconstant character. The figure in the "Refugium Botanicum" represents a perfectly cylindrical stem, and the tree here described has a tapering stem, without any bulging at the base. On the other hand, a *Yucca* growing in the Cambridge Botanic Garden figured in the "Gardeners' Chronicle" (series 3, vol. xxiii. 1895, p. 524, f. 98) as *Y. guatemalensis* had a stem with a swollen base. At our request, Mr. Lynch has sent us a leaf of the Cambridge plant, which has all the characteristics of *Y. guatemalensis*.

Descr.—A tree about forty feet high. *Trunk* not swollen at the base, about six feet in girth close to the ground; about five feet at one foot from the ground, and about two feet at six feet from the ground, densely branched at the very top only. *Leaves* crowded, persistent long after withering, largest about four feet long, stem-clasping base five inches broad, narrowed immediately above the attachment, two inches and a quarter broad at six inches from the base, about, four inches broad at two feet and a quarter from the base, deeply concavo-convex, margin very obscurely toothed throughout, tip scarcely spiny. *Panicle* densely branched, almost sessile, three to four feet long; bracts shorter than the pedicels. *Flowers* white, or slightly tinged with yellow, about three inches across. *Perianth* campanulate; segments lanceolate, about two inches long, rather obtuse, three outer somewhat narrower than the inner. *Stamens* shorter than the pistil; filaments club-shaped, puberulous. *Ovary* glabrous; style very short. *Fruit* a berry, not seen by us.—W. BOTTING
HEMSLEY.

Fig. 1, portion of the edge of leaf; 2 and 3, stamens:—*all enlarged*; 4, whole plant: *about one fiftieth of the natural size*.



TAB. 6316.

YUCCA ORCHIOIDES, *var.* MAJOR.

Native of the Southern United States.

Nat. Ord. LILIACEÆ.—Tribe YUCCOIDEÆ.

Genus YUCCA, Linn. (*Engelmann, Monograph.*)

YUCCA *orchioides*, var. *major*; acaulis, foliis 12–15 ensiformibus chartaceis glauco-viridibus 12–15-poll. longis deorsum margine parce filamentosis, scapo puberulo pedali, panicule laxæ ramis brevibus erecto-patentibus, pedicellis inferioribus geminis bracteis 2–3-plo brevioribus, floribus inapertis viridulis, perianthii albi segmentis oblongo-lanceolatis acutis 18–21 lin. longis, filamentis pilosis perianthio triplo brevioribus, stylis ovario subduplo brevioribus.

In this group of Yuccas it is very difficult to settle satisfactorily where one species ends and another begins. Of described forms the present plant comes nearest to *Y. orchioides* of Carriere, described in the 'Revue Horticole,' for 1861 at page 369 and figured at tab. 89 and 90. It differs from this by its more robust habit, branched inflorescence, longer styles and longer more acute perianth segments. It is probable that in a broad sense *orchioides* is not more than an extreme variety of *filamentosa*, and if so this should be regarded as a connecting link in the series. It was drawn from a plant which flowered in the Kew collection in July, 1875, and is perfectly hardy.

DESCR. *Leaves* twelve or fifteen in a stemless rosette, ensiform, glaucous green, chartaceous, a foot or a foot and a quarter long, an inch broad at the middle, with a few short threads splitting off from the margin in the lower half. *Scape* erect, about a foot long, with five or six erect reduced leaves. *Panicle* as long as the scape, with a densely pubescent rachis, and five or six short lax erecto-patent branches; pedicels about a quarter of an inch long, the lower ones in pairs; bracts membranous, lanceolate, two or three times as long as the pedicels. *Buds* tinged with

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green. Expanded perianth milk-white, broadly campanulate, strongly scented; segments oblong-lanceolate, acute, the outer ones about half an inch and the inner ones three-quarters of an inch broad. *Stamens* a third as long as the perianth; filaments densely pubescent; anthers small, oblong. *Ovary* oblong-cylindrical, about half an inch long; styles more than half as long as the ovary.—*J. G. Baker.*

Fig. 1, The entire plant, *much reduced*; 2, the stamens and pistil, *magnified*.



TAB. 7172.

YUCCA RUPICOLA.

Native of Southern United States and Mexico.

Nat. Ord. LILIACEÆ. Tribe DRACÆNEÆ.

Genus YUCCA, *Linn. (Benth. & Hook. f. Gen. Plant. vol. iii. p. 778).*

YUCCA *rupicola*; subcaulis, foliis pluribus dense rosulatis ensiformibus rigidis viridibus 1–2-pedalibus apice pungentibus marginibus corneis minute serrulatis, pedunculo foliis longiori, floribus in paniculam amplam laxam oblongam dispositis ramis ascendentibus, pedicellis brevibus apice articulatis, bracteis ovatis scariosis, perianthio magno campanulato albido segmentis acutis ovatis vel oblongis, staminibus ovario æquilongis filamentis muricatis, stylo ovario cylindrico-trigono breviori stigmatibus parvis, fructu capsulari oblongo rostrato, seminibus tenuibus.

Y. *rupicola*, *Scheele in Linnæa*, vol. xxiii. (1850) p. 143; *Engelm. Monogr.* p. 48; *S. Wats. in Proc. Amer. Acad.* vol. xiv. p. 253; *Baker in Gard. Chron.* 1870, p. 828; *Journ. Linn. Soc.* vol. xviii. p. 222.

Y. *lutescens*, *Carriere in Rev. Hort.* vol. vii. (1858), p. 579.

Y. *tortifolia*, *Lindheim. inedit.*

There are three distinct types of *Yucca* in leaf-character. The first group has the leaf margined with minute horny teeth, the second with a narrow entire brown horny border, whilst in the third the margin breaks up into slender wiry threads. The present plant is the only species of the first group which is hardy anywhere in England. It is a native of Texas, New Mexico, and the northern provinces of Mexico. It was gathered lately by Mr. C. G. Pringle on rocky hills near Chihuahua, flowering in the middle of April and producing fruit in May. It was introduced into cultivation by M. Trecul, from Texas, about the year 1850, but is still rare in English gardens. Our drawing was made from a plant which flowered with Canon Ellacombe at Bitton in the autumn of 1890.

DESCR. Nearly or quite acaulescent. *Leaves* densely rosulate, pale green, ensiform, stiffly suberect, above two feet long, an inch and a half broad at the middle, narrowed gradually to a long pungent point and to half an inch above the clasping base, margined with a minutely-toothed horny brown border. *Peduncle* stout, erect, a little longer

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than the leaves. *Panicle* lax, oblong, five or six feet long; branches slender, ascending, the lower a foot or more long; pedicels half or three-quarters of an inch long, articulated at the apex; bracts moderately large, ovate, brown, scariose. *Perianth* drooping, campanulate, milk white, two inches or more long; segments acute, the outer oblong, the inner broader, ovate. *Stamens* as long as the ovary; filaments cylindrical, densely minutely muricated; anthers emarginate at both the apex and base. *Ovary* cylindrical-trigonous, above half an inch long; style shorter than the ovary; stigmas small. *Fruit* hard, dry, oblong, rostrate, an inch and a half long. *Seeds* thin.—*J. G. Baker.*

Fig. 1, Margin of the leaf; 2 and 3, stamens; 4, pistil:—*all more or less enlarged.*

Nereis.



(2222)

YUCCA STRICTA. LYON'S NARROW-LEAVED
ADAM'S NEEDLE.

Class and Order.

HEXANDRIA MONOGYNIA.

Generic Character.

Cor. campanulat-patens. *Stylus* 0. *Caps.* 3-locularis.

Specific Character.

YUCCA *stricta*; acaulis, foliis lanceolato-linearibus stric-
tissimis apice elongatis, scapo basi ramoso: ramis sim-
plicibus, corollis orbiculato-campanulatis.

This, as we believe, hitherto unrecorded species, was introduced from Carolina a few years ago by the late Mr. LYON, and appears to be the most desirable species of the whole genus as it grows fast, and blossoms very freely in the open ground. The *leaves* are long, straight, and lengthened into a very tapering point, with a few scattered threads along the margin; the *scape* is about four or five feet high, growing very upright, bearing many flowers of a more globular form than those of any of the other species, and having several simple branches near the base. It has been supposed to be the *angustifolia* of PURSH, but is a much larger plant, and from comparing it with a specimen of the latter communicated by our friend Mr. LAMBERT from his garden at Boyton, seems to be a very distinct species. We have a drawing of this, the true *angustifolia* of which we shall take an early opportunity of publishing.

Our drawing of this valuable acquisition to our gardens was taken last July at the Fulham Nursery, Messrs. WHITLEY, BRAME, and MILNE.



TAB. 7662.
YUCCA WHIPPLEI.
Native of California.

Nat. Ord. LILIACEÆ.—Tribe DRACCÆNEÆ.

Genus YUCCA, *Dill.*; (*Benth. & Hook. f. Gen. Plant.* vol. iii. p. 778.)

Yucca (*Hesperoyucca*) *Whipplei*; caule brevissimo prostrato stolonifero, foliis numerosissimis densissime confertis patentibus lineari-subulatis falcatis v. strictis rigidis 10–20 poll. longis a basi $\frac{1}{2}$ poll. lata sensim angustatis glaucis striatis dorso carinatis, apicem trigonum pungentem versus concavis, marginibus serrulato-asperis, scapo 4–12-pedali robusto stricto, bracteis 6–9 poll. longis e basi lata foliaceis recurvis inferioribus confertis foliiformibus, supremis ad basin panicule latioribus, panicula cylindracea densiflora, perianthii 2–4 poll. diam. subglobosi segmentis incurvis albo-virescentibus apices versus rubro-purpureo marginatis exterioribus oblongo-lanceolatis acuminatis interioribus multo latioribus, filamentis erectis sursum incrassatis lævibus, antheris didymis, ovario oblongo, stylo brevi, stigmatibus crasso trilobo, capsula globoso-ovoidea 1–2 poll. longa, erecta, obtusa, loculicide 3-valvi, valvis integris, seminibus parvis valde compressis lævibus anguste marginatis.

Y. Whipplei, *Torr. in Bot. Mex. Bound.* p. 222 (*textu*). *Bot. Exped. Ives*, p. 29. *Bot. Works Engelmann*, pp. 277, 296, 297, 298, 307. *Gard. Chron.* 1876, vol. ii. p. 197, fig. 42. *S. Wats. in. Bot. Calif.* vol. ii p. 164, *et in Proc. Amer. Acad.* vol. xiv. p. 254. *Baker, Rivist. Yucchi, Beaucarn. e Dasytir. in Bull. R. Soc. Tosc. diortic.* 1881-2, p. 23. *The Cactus Journal*, June, 1899, p. 73 *cum ic.*

Y. graminifolia, *Wood in Proc. Acad. Sc. Philadelph.* 1868, p. 167.

Y. aloifolia, *Torr. Pacific R. Rep.* vol. iv. p. 147.

?*Agave californica*, *Hort. Kew. ex. Jacobi, Agave, App.* p. 117. *Lemaire, Ill. Hortic.* 1863, *sub tab.* 372.

Yucca Whipplei is a native of rocky mountains in California, from San Bernardino to Monterey, extending thence eastwards to N.W. Arizona. It is a very stately species, attaining twice the height of an ordinary man, with copious bright green foliage, a stout, bracteate scape, and a noble panicle of large, sub-globose flowers. The figure here given was drawn by Lady Thiselton-Dyer, during a visit to the Commendatore Hanbury, Palazzo Orengo, Ventimiglia, in April, 1891, when the plant was flowering for the first time in that gentleman's magnificent garden. From a record, preserved at the Palazzo, and communicated to me by Commendatore Hanbury, it appears

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that ripe seeds of this *Yucca* were received in January, 1882, from Ludwig Winter, of Bordighera. These would give the age of the specimen at first flowering as nine years. It flowered a second time in the autumn or winter of 1896, but not since, though it is alive and well.

Descr.—Stoloniferous. *Stem* very short and prostrate, or none. *Leaves* most densely crowded, in an almost globose mass, two to three feet in diameter, spreading on all sides, linear-subulate, ten to twenty inches long, suddenly tapering from a base about half an inch broad to a trigonous pungent tip, rigid, straight, or curved, glaucous-green, striate, dorsally keeled, margins minutely serrulate. *Scape* four to twelve feet high, very stout, erect, loosely covered above, densely below, with erect or recurved foliaceous bracts, six to nine inches long. *Panicle* erect, cylindric, dense-flowered, two to four inches in diameter, quite glabrous; branches many-flowered; floral bracts small. *Flowers* globose, two to two and a half inches in diameter, pendulous from stout, decurved pedicels, an inch and a half long; perianth-segments incurved, concave, acute, greenish-white, margined with dull purple, outer broadly oblong-lanceolate, inner narrower. *Stamens* about half as long as the perianth-segments; filaments stout, thickened in the middle, quite smooth; anthers didymous. *Ovary* oblong, laterally six-lobed; style very short, stigma three-lobed. *Capsule* two and a half inches long, broadly oblong, trigonous—*J. D. H.*

Fig. 1, Stamen; 2, ovary; 3, capsule:—*All enlarged*; 4, *reduced* view of plant.